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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1887.

No. 149.

JACOB O. JOYCE, APPELLANT,

vs.

THE CHILLICOTHE FOUNDRY AND MACHINE WORKS COMPANY AND F. M. DE WEESE.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF OHIO.

FILED OCTOBER 22, 1884.

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1 At a stated term of the circuit court of the United States within and for the sixth judicial circuit and eastern division of the southern district of Ohio, begun and held at the court-room, in the city of Columbus, on the first Tuesday of June, being the fifth day of that month, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States of America the one hundred and seventh, among the proceedings had were the following, to wit:

JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY AND MACHINE WORKS COMPANY and F. M. DE WEESE. } In Equity.

Be it remembered that heretofore, to wit, on twenty-sixth day of January, in the year of our Lord one thousand eight hundred and eighty-one, there was filed in the clerk's office of the court aforesaid in said cause a certain bill of complaint clothed in the words and figures following, to wit:

2 *Bill.*

J. O. JOYCE
vs.
CHILLICOTHE FOUNDRY & MACHINE WORKS Co. and F. M. DE WEESE. } In Equity. No. 33.

To the honorable the judges of the circuit court of the United States for the southern district of Ohio:

A citizen of the State of Ohio, residing at Dayton, in said State, brings this his bill of complaint against the Chillicothe Foundry and Machine Works Company, a corporation organized under the laws of Ohio and doing business at Chillicothe, in said State, and F. M. De Weese, a citizen of the State of Ohio and residing at Chillicothe, in said State.

And thereupon your orator complains and says that he is the original and first inventor of improvements in lifting jacks, fully described in the letters patent hereinafter mentioned, and which had not been known or used before his said invention, and which was not at the time of his application for a patent, as hereinafter mentioned, in public use or on sale, with his consent or allowance, for more than two years. And your orator, on information and belief, further shows unto your honors that, being so as aforesaid the first inventor and discoverer of said improvements, and being also a citizen of the United States, — did, on the 15th day af September, 1874, upon due application therefor, obtain letters patent of the United States for said invention, in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of
3 Patents of the United States, bearing date the day and year last aforesaid, whereby there was granted and secured to him, his heirs, administrators, or assigns, or intended so to be, for the term of 17 years from and after the date of said letters patent, the

full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention and improvements as set forth in said letters patent, which are of record in said Patent Office, and by virtue whereof your orator became and is the sole owner of all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent; and your orator, further complaining, says that he is the original and first inventor of certain other improvements in lifting jacks, fully described in the letters patent hereinafter mentioned, and which had not been known or used before his said invention and which was not at the time of his application for a patent, as hereinafter mentioned, in public use or on sale, with his consent or allowance, for more than two years.

And your orator, on information and belief, further shows unto your honors that, being so as aforesaid the first inventor and discoverer of said improvements, and being also a citizen of the United States, — did, on the 1st day of February, 1876, upon due application therefor, obtain letters patent of the United States for said invention, in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents of the United States, bearing date the day and year last aforesaid, whereby there was granted and secured to him, his heirs, administrators, or assigns, or intended so to be, for the term of 17 years from and after the date of said letters patent,

4 the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention and improvements as set forth in said letters patent, which are of record in said Patent Office, and by virtue whereof your orator became and is the sole owner of all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent.

And your orator further shows unto your honors that by virtue of the premises he became and now is the sole and exclusive owner of said letters patent and the inventions and improvements described therein, and of all the rights and privileges granted and secured or intended to be granted and secured thereby.

And that since the granting of said patents aforesaid — has invested and expended large sums of money and has been to great trouble in and about said invention and for the purpose of and in carrying on the business of making and selling lifting jacks and making the same profitable to himself and useful to the public, and that said invention has been and is of great benefit and advantage, and that lifting jacks were and are being made according to said invention, and sold by your orator to great advantage to the public, and that the public have generally acknowledged and acquiesced in the aforesaid rights of your orator, and your orator believes that he will realize and receive large gains and profits therefrom if infringements by said defendants and their confederates shall be prevented.

Yet the said defendants well knowing the premises and the rights secured to your orator aforesaid, but contriving to injure your orator and deprive him of the benefits and advantages which might and

otherwise would accrue unto him from said invention, after the issuing to him of the letters patent aforesaid and before the commencement of this suit, did, as your orator is informed and believes, without license or allowance and against the will of your orator and in violation of his rights and in infringement of both of the aforesaid letters patent, unlawfully and wrongfully and in defiance of the rights of your orator make, construct, use, and vend to others to be used, the said invention, and did make, construct, use, and vend to others to be used, lifting jacks containing the inventions described and claimed in said patents, respectively; all in defiance of the rights acquired by and secured to your orator as aforesaid, and to his great and irreparable loss and injury, and by which he has been and still is being deprived of great gains and profits which he might and otherwise would have obtained, but which have been received and enjoyed and are being received and enjoyed by the said defendants by and through their aforesaid unlawful acts and doings.

And your orator further shows unto your honors, on information and belief, that said defendants sold large quantities of said lifting jacks and have a large quantity on hand which they are offering for sale, and have made and realized large profits and advantages therefrom, but to what extent and how much exactly your orator does not know and prays a discovery thereof; and your orator says that the use of said invention by said defendants and their preparation for and avowed determination to continue the same and their other aforesaid unlawful acts in disregard and defiance of the rights of your orator have the effect to, and do, encourage and induce others to venture to infringe said patents in disregard of your orator's rights.

And your orator further shows unto your honors that said defendants have had notice of said infringements and of the rights
6 of your orator in the premises, and have been requested to refrain therefrom, but have disregarded said notice and refused to desist from said infringements and still continue to make and sell said lifting jacks in infringement of his said patents.

And forasmuch as your orator can have no adequate relief except in this court, to the end, therefore, that the said defendants may, if they can, show why your orator should not have the relief hereby prayed, and may each, according to their best and utmost knowledge, remembrance, information, and belief, full, true, direct, and perfect answers make to the premises, and to all the several matters hereinbefore stated and charged, as fully and particularly as if severally and separately interrogated as to each and every of said matters, and may be compelled to account for and pay to your orator the profits by them acquired and the damages suffered by your orator from the aforesaid unlawful acts.

And your orator prays that said defendants, The Chillicothe Foundry and Machine Works Company and F. M. De Weese, servants, agents, attorneys, workmen, and each and all of them may be restrained and enjoined provisionally and perpetually by the order and injunction of this honorable court from directly or indirectly

making, constructing, using, vending, delivering, working, or putting into practice, operation, or use or in any wise counterfeiting or imitating the said invention or any part thereof or any lifting jacks made in accordance therewith or like or similar to those which they have heretofore made, and that your orator may have such further or other relief as to this honorable court shall seem meet and as shall be agreeable to equity.

May it please your honors to grant unto your orator the writ of injunction, as well provisional as perpetual, issuing out of and
7 under the seal of this honorable court, commanding, enjoining, and restraining the said defendants, The Chillicothe Foundry and Machine Works Company and F. M. De Weese, and their servants, agents, attorneys, and workmen and each and all of them as is hereinbefore in that behalf prayed.

May it please your honors to grant unto your orator the writ of subpœna issuing out of and under the seal of this honorable court, directed to the said defendants, The Chillicothe Foundry and Machine Works Company and F. M. De Weese, commanding them, by a certain day and under a certain penalty, to be and appear in the honorable court, then and there to answer the premises and to stand to and abide such order and decree as may be made against them.

And your orator will ever pray, etc.

JACOB O. JOYCE.

WOOD & BOYD,
Solicitors of Complainant.

(Proper verification.)

8 And thereupon there was issued out of the clerk's office of the court aforesaid in said cause our certain writ of subpœna, directed to the marshal of this district and clothed in the words and figures following, to wit:

UNITED STATES OF AMERICA, } ss:
Southern District of Ohio, }

The President of the United States of America to the marshal of the southern district of Ohio, Greeting:

You are hereby commanded to summon Chillicothe Foundry and Machine Works (a corporation) and F. M. De Weese, citizens of and residents in the State of Ohio, if they be found in your district, to be and appear in the circuit court of the United States for the southern district of Ohio aforesaid, at Columbus, on the first Monday in March next, to answer a certain bill in chancery filed and exhibited in said court against them by Jacob O. Joyce, citizen of and resident in the State of Ohio. Herein you are not to fail, under the penalty of the law thence ensuing; and have you then and there this writ.

Witness the Honorable Morrison R. Waite, Chief Justice of the United States, this 26th day of January, A. D. 1881, and in the 105 year of the Independence of the United States of America.

Attest:

[SEAL.] WILLIAM C. HOWARD, *Clerk.*

9 MEMORANDUM.—The said defendants are required to enter there appearance in this suit in the clerk's office of said court on or before the first Monday of March, 1881; otherwise said bill may be taken *pro confesso*.

WILLIAM C. HOWARD, *Clerk*.

And afterwards, to wit, on the seventeenth day of February, in the year last aforesaid, came the marshal of this district, to whom said writ of subpœna was in manner and form aforesaid directed, and returned the same into the clerk's office of the court aforesaid, with his doings and proceedings endorsed thereon, clothed in the words and figures following, to wit:

Received this writ at Columbus, O., February 2d, 1881, at 9.45 a. m., and served the same at Chillicothe on the 9th day of February, 1881, by delivering true copies thereof as follows: On Wm. J. Inghin, as president, and C. F. Smith, as sec'y, of the Chillicothe Foundry & Machine Works, personally at 8 a. m.; on F. M. De Weese personally at 11.30 a. m. on same day.

J. C. ULLERY, *U. S. Marshal*,
By THOMAS J. QUIN, *Dep.*

And afterwards, to wit, on the twenty-sixth day of February, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause a certain appearance of defendants clothed in the words and figures following, to wit:

10 In the Matter of JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY & MACHINE WORKS *et al.*

Deputy clerk U. S. court, Columbus, O.

DEAR SIR: Please enter my appearance as attorney for defendants named in the suit of Jacob O. Joyce *vs.* Chillicothe Foundry and Machine Works Co. and F. M. De Weese.

L. M. HOSEA.

And afterwards, to wit, on the twenty-third day of March, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause certain exceptions to the bill of complaint clothed in the words and figures following, to wit:

Circuit Court of the United States, Southern District of Ohio. In Equity.

JACOB O. JOYCE
vs.
THE CHILLICOTHE FOUNDRY AND MACHINE WORKS COMPANY & F. M. DE WEESE. } 33.

Now comes F. M. De Weese, one of the defendants herein, by his counsel, and excepts to the bill herein filed against him, and
11 avers that the same is indefinite aud uncertain in this, to wit:

1. That said bill alleges infringement of two separate letters

patent of the United States for alleged improvements in lifting jacks granted to the complainant, which are designated only by the date of their issue, respectively, to wit, one issued on September 15th, 1874, and one issued February 1st, 1876; whereas it appears by the public records of the United States Patent Office that on the date last mentioned two separate patents were issued to said complainant for distinct and dissimilar inventions, both being, however, for the same general subject-matter, to wit, alleged "improvements in lifting jacks."

Wherefore this defendant is not advised as to which of said last-mentioned letters patent the complainant charges infringement, and cannot therefore properly defend said charge, and he asks that the complainant may be required to amend his bill and make the same more definite and certain in the particulars above set forth and give the number or otherwise designate the patent of February 1st, 1876, upon which he relies.

2nd. That said bill is indefinite and uncertain in this, to wit, that said bill alleges two distinct improvements or series of improvements covered by letters patent of the United States of dif-
12 ferent dates, and therefore necessarily distinct and different inventions; but the charging clauses thereafter contained in said bill are indefinite and uncertain in that they refer both to an invention and to inventions, leaving it uncertain whether the complainant intends to charge infringement of one or both of his said letters patent.

Wherefore this defendant asks that the complainant be required to make the bill more definite and certain in the above-mentioned particulars in order that this defendant may properly defend the said charges of infringement.

F. M. DE WEESE, *Defendant*,
By L. M. HOSEA, *Sol. & Counsel.*

And afterwards, to wit, on the twenty-fourth day of March, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause a certain demurrer of F. M. De Weese clothed in the words and figures following, to wit:

Circuit Court of the United States, Southern District of Ohio. In Equity.

JACOB O. JOYCE
vs.
THE CHILLICOTHE FOUNDRY AND MACHINE WORKS COMPANY and F. M. DE WEESE. } 33.

13 Now comes F. M. De Weese, one of the above-named defendants, by his counsel, and, without waiving his right to answer to the merits, doth demur in law to said bill, and for cause of demurrer showeth that it appears by said bill that the same is multifarious in this, that the same sets forth several and unconnected grants of letters patent covering distinct inventions and asks relief for the alleged infringement thereof jointly, whereby the defendant

is deprived of the opportunity to defend as to said letters patent separately, as he hath in law a right to do, and as to which he hath distinct and valid defenses.

L. M. HOSEA,
His Counsel.

L. M. Hosea, counsel for defendant above named, does certify that, in his opinion, the foregoing demurrer is well founded in point of law.

L. M. HOSEA.

STATE OF OHIO, } ss:
Ross County, }

F. M. De Weese, being duly sworn, says that the foregoing demurrer is not interposed for delay, but for the purpose of asserting the proper legal rights of this defendant and bringing the same before the court for adjudication.

F. M. DE WEESE.

Sworn to & subscribed before me this 23d day of March, A. D. 1881.

[SEAL.] E. K. MEEK,
Notary Public in & for the County of Ross, Ohio.

14 And afterwards, to wit, on the thirtieth day of April, in the year last aforesaid, an entry was made upon the journal of said court in said cause clothed in the words and figures following, to wit:

JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY AND MACHINE WORKS CO. *et al.* } Equity, 33.

On motion of complainant leave is granted him to amend his bill herein forthwith, and amendment filed.

And afterwards, but on the same day, there was filed in the clerk's office of the court aforesaid in said cause a certain amendment of bill clothed in the words and figures following, to wit:

J. O. JOYCE
vs.
CHILLICOTHE FOUNDRY *et al.* } In Equity, 33.

Complainant, by leave of court first had and obtained, herein amends his said bill as follows:

On page 3, after the words "which are of record in said Patent Office" insert the following, to wit: "And being numbered one hundred and seventy-two thousand nine hundred and twenty-four (172,924)."

15 Also on page 4, in line 34, after the words "lifting jacks" insert the word "each."

JACOB O. JOYCE,
By his solicitors, WOOD & BOYD.

And afterwards, to wit, on the twenty-seventh day of May, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause a certain answer of F. M. De Weese clothed in the words and figures following, to wit:

JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY & MACHINE WORKS CO. and F. M. DE WEESE. } In Equity, 33.

The answer of F. M. De Weese, one of the defendants, to the bill of complaint of Jacob O. Joyce, complainant.

To the honorable the judges of said court:

This defendant, now and at all times hereafter, saving and reserving to himself all benefit and advantage of exception which can or may be had to the manifold errors, uncertainties, and other imperfections in the said bill of complaint contained, for answer
16 thereto, or unto so much and such parts thereof as this defendant is advised is or are material or necessary for him to make answer thereunto, this defendant, answering, says:

1st. He admits that the letters patent No. 154,989, dated September 15, 1874, for an improvement in lifting jacks were granted and issued to Jacob O. Joyce September 15, 1874; and he further admits that the letters patent No. — for an improvement in lifting jacks were granted and issued to Jacob O. Joyce, bearing date February 1st, 1876, but he is not informed save by said bill of complaint when, if ever, the said Jacob O. Joyce invented the alleged improvements described and claimed in said letters patent, nor whether the application for said letters were in due form of law, nor whether the complainant now or ever has been the sole and exclusive owner of said letters patent or the alleged inventions and improvements described therein, nor whether he has expended large sums of money or has been to great trouble in and about said alleged inventions, nor whether said alleged inventions have been of great benefit and advantage, and therefore this respondent leaves the complainant to make proof of all such matters as he shall be advised.

2nd. And this respondent, further answering on information and belief, denies that the said letters patent are valid or effectual
17 in law to secure to the complainant the exclusive right of making, using, and vending to others to be used, the alleged improvements described and claimed in the specifications annexed to and forming part of said letters patent or any part of the same.

3rd. And this respondent, further answering on information and belief, says that if the said letters patent were otherwise valid, which this respondent denies, they would be and are invalid and ineffectual at law and in equity to secure to the complainant any exclusive right or privilege in or to the alleged improvements mentioned in said letters patent for the following reasons, to wit, because the said Jacob O. Joyce was not the original and first inventor of the said alleged improvements, but that the same subject-matter described and claimed as new in said letters patent or a substantial and ma-

terial part thereof or substantial and material parts thereof was or were, before the alleged invention thereof by said Jacob O. Joyce, described and represented in the following-named patents and applications for patents of the United States and in the models and drawings pertaining thereto and filed with the respective applications therefor—that is to say:

The patent of E. G. Connelly, of Indianapolis, Ind., for sash fasteners, granted and dated February 21st, 1884, and No. 10541.

18 The patent of F. B. Smith, of Craigville, New York, for lifting jacks, granted and dated July 11, 1854, and No. 11303.

The patent of R. W. Genung, of Blooming Grove, N. Y., for lifting jacks, granted and dated July 11, 1854, and No. 11298.

The patent of B. Russell, of Brooklyn, N. Y., for door bolt, granted and dated April 9th, 1861, and No. 32002.

The patent of D. Tasig, of Rowsburg, Ohio, for lifting jacks, granted and dated August 12, 1862, and No. 36144.

The patent of J. B. Masser, of Sunbury, Pennsylvania, for sash holder, granted and dated December 12th, 1865, and No. 51469.

The patent of L. Smith, of Rochester, Minn, for lifting jacks, granted and dated July 3rd, 1866, and No. 56111.

The patent of M. Andriat, of Mount Washington, Ohio, for lifting jacks, granted and dated September 25th, 1856, No. 58198.

19 The patent of R. Hutton, of Brooklyn, N. Y., for sash holder, granted and dated January 1st, 1867, and No. 60735.

The patent of J. N. Sawtell, of Chicopee, Mass., for sash holder, granted and dated May 21st, 1867, and No. 65015.

The patent of Isaac Pardee and R. C. Parvin—the former of Vineland, New Jersey, and the latter of Forrest Grove, New Jersey—for stump elevator, granted and dated May 28th, 1867, and No. 65260.

The patent of A. C. Rogers, of Philadelphia, Penna., for sash holder, granted and dated March 9th, 1869, and No. 87708.

The patent of W. M. Smith, of Augusta, Ga., for cotton press, granted and dated August 16, 1870, and No. 106,417.

The patent of N. M. Smith, of Augusta, Georgia, for cotton and hay presses, granted and dated May 23rd, 1871, and No. 115,126.

The patent of W. C. Williamson, of Philadelphia, Penna., for safety attachments for hoisting cages, granted and dated July 4th, 1871, & No. 116,656.

20 The patent of Charles C. Shepherd, of Passaic, New Jersey, for sash holder, granted and dated January 2nd, 1872, and No. 122,496.

The patent of G. C. Tunpe, of New Orleans, Louisiana, for automatic safety locks for elevators, granted and dated February 4, 1873, and No. 135,453.

The patent of R. Dunbar, of Buffalo, N. Y., for safety platforms for elevators, granted and dated June 24th, 1873, and No. 140,190; and various other letters patent of the United States and of other countries, reference to which the defendant craves leave to add hereto when the same shall have been ascertained.

4th. And this respondent, further answering on information and belief, says that the said Jacob O. Joyce was not the original and

first inventor or discoverer of any material or substantial part of the alleged improvements in lifting jacks so patented to him as aforesaid, but that before his alleged invention thereof the same, or a substantial or material part thereof, or substantial or material parts thereof, was or were known and used by Paul J. Sorg and by John Auer, both residents of Middletown, Butler county, Ohio, at
21 said Middletown and at Cincinnati, Ohio, and by John H. McGowan, of Cincinnati, Ohio, at said Cincinnati, Ohio, and by various other persons and at various other places, an exact reference to which the defendant is not now able to give, but craves leave to add hereto by way of amendment when the same shall have been ascertained.

5. And this respondent, further answering on information and belief, denies that the complainant has ever been or is in the exclusive possession and enjoyment of the alleged invention described and claimed in said letters patent herein sued on.

6th. And this respondent, further answering, denies that he has ever infringed any of the complainant's rights in the premises, or that he has ever unlawfully and without the complainant's consent or in any manner in violation of the complainant's rights made and used a lifting jack made or manufactured on the plan of or containing or embodying any improvement patented and secured to the complainant by his said letters patent herein sued on.

22 7th. And this respondent, further answering, says that he has reason to believe that devices of substantially the same or of substantially similar construction and operation to those described in the complainant's said letters patent were in public use and on sale in this country by various parties other than those heretofore named before the date of the alleged invention described and claimed in complainant's said letters patent, and for more than two years before the date of the application for said letters patent for said alleged invention, and that substantially the same or similar devices had been patented and had been described in printed publications and described and represented in other patents and applications for patents than those hereinbefore mentioned, and in the drawings and models pertaining thereto and filed with the respective applications therefor, before the supposed invention thereof, by the said Jacob O. Joyce, as alleged in the bill of complaint.

This respondent has been diligent in his efforts to ascertain when and where such prior use or sale was made, and the names and residences of the parties making the same, and the particulars and proof of the descriptions, patents, representations, and printed publications referred to. He therefore prays leave of this hon-
23 orable court, on obtaining such information, to file his amended answer setting forth the same.

8th. All which matters and things this respondent is ready to aver, maintain, and prove as this honorable court shall direct, and prays to be hence dismissed with his reasonable costs and charges in this behalf most wrongfully sustained.

F. M. DE WEESE,
By L. M. HOSEA,
Sol. & of Counsel.

United States of America, Southern District of Ohio, Eastern Division.

STATE OF OHIO, *Ross County,* } *ss:*

F. M. De Weese, being duly sworn, deposes and says that he is one of the defendants named in the foregoing answer subscribed by him; that he has read the same and knows the contents thereof, and that the same is true of his own knowledge, except as to those matters therein stated on information and belief, and as to those matters he believes it to be true.

F. M. DE WEESE.

Sworn to and subscribed before me this 4th day of April, A. D. 1881.

[SEAL.]

E. K. MEEK,
Notary Public, Ross County, Ohio.

24 And afterwards, to wit, on the sixteenth day of September, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid, in said cause, a certain appearance for Chillicothe Foundry & Machine Works Company, clothed in the words and figures following, to wit:

United States Circuit Court, Southern District of Ohio. In Equity.

J. O. JOYCE
vs.
CHILLICOTHE FOUNDRY & MACHINE WORKS COMPANY *et al.* } 33.

The clerk will please enter our appearance for the defendant, The Chillicothe Foundry & Machine Works Co.

RAINEY & HOSEA, *Solicitors,*

And afterwards, but on the same day, there was filed in the clerk's office of the court aforesaid, in said cause, a certain motion for leave to file answer, clothed in the words and figures following, to wit:

J. O. JOYCE
vs.
CHILLICOTHE FOUNDRY AND MACHINE WORKS CO. *et al.* } In Equity. 33.

25 Now comes the defendant, the Chillicothe Foundry & Machine Works Co., by its solicitors, Mess. Rainey & Hosea, and move the court for leave to file an answer for it.

RAINEY & HOSEA,
Sol's for Chil. Fo'd'y & M'ch. Wo'ks Co.

And afterwards, to wit, on the seventeenth day of September, in the year last aforesaid, an entry was made upon the journal of said court in said cause clothed in the words and figures following, to wit:

JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY AND MACHINE WORKS CO. *et al.* } Equity. 33.

On motion to the court the default herein is set aside and the defendant, The Chillicothe Foundry and Machine Works Company, has leave to file its answer herein forthwith, and the same is accordingly filed.

And afterwards, but on the same day, there was filed in the clerk's office of the court aforesaid in said cause a certain separate answer of the Chillicothe Foundry & Machine Works Company clothed in the words and figures following, to wit:

26 Circuit Court of the United States, Southern District of Ohio.
In Equity.

JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY AND MACHINE WORKS COMPANY and F. M. DE WEESE. } 33.

To the honorable judges of said court:

The answer of the Chillicothe Foundry and Machine Works Company, one of the defendants, sheweth:

Now comes the Chillicothe Foundry and Machine Works Company, and by leave of court files this its answer in the cause and says:

This defendant, by and with the consent of its codefendant herein, and to avoid unnecessary repetition, adopts the allegations of the answer hereinbefore filed by its codefendant, F. M. De Weese, as its own, so far as the same are applicable, and prays the court to accept the same as the joint and several answer of both defendants and craves the same benefit thereof as if the same had been so originally filed.

And, further separately answering in its own behalf, this defendant denies that it has ever infringed upon any right of the complainant, or that it has ever made or sold any machines
27 containing or embodying the complainant's said inventions or either of them or any substantial or material parts thereof.

This defendant admits that it has heretofore, to a limited extent, fitted together and finished for its codefendant, F. M. De Weese, the parts of lifting jacks furnished to them by said De Weese, but avers that said parts and said jacks when finished were substantially and materially different from those claimed by said complainant as his invention, and furthermore by letters patent of the United States granted to Samuel Mosler, whose sole assignor this codefendant was and is, to wit, letters patent No. 168,663, dated October 11th, 1875; letters patent No. 172,471, dated January 18th, 1876; letters patent No. 194,711, dated August 28th, 1877, and that all its proceedings in the premises were of the nature and to the extent only as above

set forth, and that it has not at any time sold lifting jacks or manufactured the same on its own account.

Wherefore this defendant asks to be hence dismissed with costs.

W. J. INGHAM,
President of the Chillicothe Foundry & M'ch. Works Co.,
By L. M. HOSEA,
Sol. & of Counsel.

28 STATE OF OHIO, *Ross County:*

W. J. Ingham, president of the defendant company, says on oath that he has read and knows the contents of the foregoing answer, and that the allegations of the same are true of his own knowledge, except as to those matters stated therein on information and belief, and as to those matters he believes them to be true.

W. J. INGHAM,
Pres. of the Chil. Fo'ry & M'ch. W'ks Co.

Sworn to before me and subscribed in my presence this 16th day of August, A. D. 1881.

[SEAL.]

H. W. WOODROW,
Notary Public, Ross County, O.

And afterwards, to wit, on the fourteenth day of October, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause a certain replication clothed in the words and figures following, to wit:

Circuit Court of the United States for the Southern District of Ohio.
In Equity.

JACOB O. JOYCE
vs.
THE CHILLICOTHE FOUNDRY AND MACHINE WORKS CO. *et al.* } 33.

29 The replication of Jacob O. Joyce, complainant, to the answer of The Chillicothe Foundry and Machine Works Company and F. M. De Weese, defendants.

This repliant, saving and reserving to himself — and all manner of advantage of exception to the manifold insufficiencies of the said answer, for replication thereto says that he will aver, maintain, and prove his said bill to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the said defendants is uncertain, untrue, and insufficient to be replied unto by this repliant, without this, that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied unto, confessed and avoided, traversed or denied, is true; all which matters and things repliant — and will be ready to aver and prove as this honorable court shall direct, and humbly prays as in and by his said bill he has already prayed.

WOOD & BOYD,
Sol's for Compl't.

And afterwards, to wit, on the twenty-first day of January, in the year of our Lord one thousand eight hundred and eighty-two, there was filed in the clerk's office of the court aforesaid in said cause a certain stipulation clothed in the words and figures following, to wit:

30 U. S. Circuit Court, S. D. O., E. D.

JOYCE
vs.
THE CHILLICOTHE FOUNDRY & MACHINE WORKS Co. *et al.* } Equity. No. 33.

It is agreed by and between the respective parties that the depositions of witnesses that may be taken by either party may be taken before any notary public or any other officer qualified to administer oaths by the law of the State where the same is taken, and said depositions shall be taken orally by question and answer.

RAINEY & HOSEA,
Att'ys for Defendants.
WOOD & BOYD,
Counsel for Complainant.

And afterwards, to wit, on the eighth day of February, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause certain depositions on behalf of complainant clothed in the words and figures following, to wit:

31 *Complainant's Opening Evidence.*

JACOB O. JOYCE, being by me first duly sworn, as hereinafter certified, deposes and says as follows:

Examined by Mr. WOOD:

1 Question. State your name, age, residence, and occupation.

Answer. Jacob O. Joyce; 56; Dayton, O.; manufacturer of lifting jacks.

2 Q. Are you the complainant in this case?

A. I am.

3 Q. Are you the patentee and inventor of the device shown in letters patent 154,989, dated September 15, 1874, now shown you?

A. I am.

4 Q. Have you a model of the patented device shown and described in said patent? And, if so, please produce it, and have it marked "Exhibit Complainant's Jack." (Model is produced and marked as requested.)

5 Q. State whether or not you have been manufacturing jacks of this kind. And, if so, how long or about how long have you been engaged in the manufacture of them?

A. Well, the jacks have been on the market something over seven years; they were first manufactured by John Nash & Company, of Cincinnati, and latterly by myself and company, Dayton, Ohio. I personally have been manufacturing them for between four and five

years actively, almost since they were taken from the other company's hands.

6 Q. During the time that you have manufactured and sold these jacks about how many have been put upon the market of this kind?

A. We make a big variety of jacks, screw jacks as well as lever jacks, and I should think that we had put on the market two thousand to twenty-five hundred of these lever jacks.

7 Q. Are you familiar with the lifting jack known as the Mosher jack, manufactured by the Chillicothe Foundry and Machine Works Company?

32 A. Yes; I know of it.

8 Q. Have you a model of said jacks? If so, please produce it.

A. I have a model and here produce it. (It is admitted by defendant's counsel that the model produced is a fair representation of the jacks manufactured by the defendants, F. M. De Weese and The Chillicothe Foundry and Machine Works Company.)

9 Q. What is the principal feature of the jack manufactured by you, as represented by this model, which you esteem to be the reason of its manufacture and sale in such quantities—your own jack?

A. Its simplicity and convenience for use, strength, and durability; and one of the main features of its being arranged as it is is to hold a load very securely by means of its many-toothed pawl; that is the biggest peculiarity of the jack. The difference between the many-toothed pawl and the single-toothed pawl is that the single-tooth pawl is not adequate for holding the load, and in this case there are four cogs in contact to hold the load, and the pawl is capable of holding twice as much as the lever would raise, probably; it is very amply strong; that is the advantage we have in the many-toothed pawl.

10 Q. At the time when you commenced to manufacture lever jacks what competition did you have in lever jacks?

A. In the commencement it was merely the Leffel jack, of Springfield, O.

11 Q. Were they a large concern, manufacturing largely?

A. Yes, sir; they had formerly been made very largely.

12 Q. What was that, a single-tooth pawl or many-tooth pawl?

A. Theirs was single tooth.

13 Q. Holding pawl?

A. Single-tooth holding pawl?

14 Q. What competition have you now?

A. Well, now, in our immediate vicinity about the strongest competition we have got is the Mosher jack. I think the Leffel jack is not made any more; not of any consequence anyhow, I think.

33 15 Q. From your observation and intercourse with the users of these jacks, how is the many-tooth pawl regarded by them as compared with the older forms of jacks?

(Objected to as incompetent and irrelevant.)

A. Why, it is regarded, of course, as much preferable to the old kind. The improvement is admitted to be first-class.

16 Q. Do you not consider the manufacture and sale of the defendant's jack to be detrimental to your manufacture and sale, and, if so, in what way?

(Objected to as incompetent and irrelevant.)

A. Of course, I consider it very detrimental to my business. It is just like meeting other parties manufacturing my own jack, having the vital principles of the jack which I manufacture with my special patents, without which the jack is of no account, as they cannot hold their load with a single-tooth pawl.

17 Q. What facilities have you for manufacturing and selling these jacks?

(Objected to as incompetent and irrelevant.)

A. Very good facilities both for shop and tools.

Cross-examination by Mr. RAINEY:

18 Q. Do you know anything about the state of the art with reference to lifting jacks prior to the date of your patent?

A. I believe I do, a little.

19 Q. What was the state of the art, so far as you know, besides the Leffel jack that you have spoken of?

A. As a lever jack, I don't know that I know. The Leffel jack is the oldest jack in the country that I know of, and the construction of which I have described—I was going to say with the single-tooth pawl.

20 Q. Then, so far as the state of the art is represented, you know of nothing prior to your patent except the Leffel jack with the single-tooth pawl?

A. Oh, there may have been others. This is the only one that I have come in contact with, I believe. It was about the only jack on the market at the time I got up my jack.

34 21 Q. What is your invention covered by this patent 154,989?

A. Well, it is expressed here in these patent papers.

22 Q. Outside of that; I am asking, outside of the expression in the paper?

A. The main features of this patent are the many-tooth pawl and the manner of working it, and its working in angular slots or inclined planes.

23 Q. By means of pins?

A. Yes, sir.

After the examination of the next witness Mr. JOYCE was recalled by agreement, and the following questions asked by complainant's counsel:

24 Q. Do you or not mean to be understood that your patent is confined to the use of pins, as you understand?

A. Why, we may use pins, or we may use guides in inclined slots, so exhibited in the patent papers, or any such contrivance.

25 Q. Do you profess to know what would be a mechanical equivalent in law?

A. Anything that would be enabled to perform the same function, I should understand.

J. O. JOYCE.

J. K. RUGG, a witness produced on behalf of complainant, being by me first duly sworn as hereinafter certified, deposes and says:

Examined by Mr. WOOD:

1 Q. State your name, age, residence, and occupation.

A. J. K. Rugg; Soldiers' Home, Montgomery county, Ohio; I am forty-five; I am filling the place of chief engineer, mechanical engineer, at the home.

2 Q. What facilities have you had to become acquainted with the mechanical industries of the country?

A. I have served an apprenticeship at the machine trade, worked at it as a journeyman, and followed it as a foreman, and have had charge of shops for the manufacture of general machinery. I have made drawings and superintended the construction of various
35 classes of machinery. I have been at it for twenty-six or twenty-seven years. I have been called upon to testify in cases, such as patent cases in the United States court, as mechanical expert.

3 Q. Have you read and examined letters patent number 154,989, granted J. O. Joyce September 15, 1874, and do you understand it?

A. Yes, sir; I have, and I think that I understand the purport of the same.

4 Q. Please look at the lever jack now shown you, marked "Defendant's Exhibit Lifting Jack," and state whether or not, in your opinion, it is substantially the same or substantially different from the device shown in said patent and specified in the first claim thereof, giving the reasons for your opinion.

(Objected to because the witness has not shown himself to be a competent expert to testify in such matters.)

A. The many-tooth pawls used in the two model jacks presented operate upon the same general principle—that is, the inclined plane—one to a greater extent than the other. In the one, the Joyce jack, I find the inclined planes of such an angle as to admit of the pawl dropping into the teeth of its own weight or gravity. In the defendant's model the same principle is involved, using the inclined plane, but at a less angle, and requiring in addition a spring behind the pawl to insure its taking proper hold upon the teeth on the bar. The inclined plane in both instances is at sufficient angle to keep the pawl from sliding out or the teeth from sliding out under the load.

5 Q. You have not answered the latter part of the question.

(Question repeated.)

A. I consider it substantially the same.

6 Q. What is the purpose and office of the projection attached to the pawl projecting through the housing of the frame of the jack?

A. It is a guide for the pawl, and at the same time to be used in removing the pawl when the weight is placed upon the lever from the teeth in lowering, its principal office being that of a guide to the pawl.

36 7 Q. What performs that office of guide in the Joyce jack?

A. The inclined slots in which the pins move that pass through the pawl and receive the load. The inclined slots serve as the guide in combination with the pins.

8 Q. What is the purpose or advantage obtained by using this inclined plane and many-tooth pawl as the holding pawl of a lifting jack?

A. The many-tooth pawl has greater strength in receiving or taking the strain upon a number of teeth which divides the strain; with the inclined slots the strain is thrown into the bottom of the slot, preventing the pawl from slipping backward, and thereby loosening its hold from the bar of the jack, as to which in the two models presented the same general features — embodied.

9 Q. In lifting jacks such as these two, what classes of work are they designed and employed in?

A. I have used them for raising locomotives, for car works; I have used them in setting boilers; I have seen them used in raising track and other uses requiring a device for raising heavy loads; I have used them in many ways and for many purposes.

Cross-examination by Mr. RAINEY:

10 Q. In the model of the defendant's jack how are the pawls made to engage with the rack?

A. Partially by the use of an inclined plane, assisted by a flexible spring.

11 Q. Now, as a matter of fact, what office does the inclined plane perform for this purpose in the defendant's model?

A. The inclined plane assists in allowing the pawl to move more readily and fully against the bar, and interlock the teeth by being upon an incline—down hill—with the spring.

12 Q. Then the object of the incline in defendant's jack is to more readily allow the spring to perform its function of driving the pawl against the rack. Is it not so?

A. Only partly so, sir. The inclined plane answers the fur-
37 ther purpose in defendant's jack of holding or keeping those teeth from slipping back out of gear or out of mash, as it were, under the load.

13 Q. Where is the inclined plane in the defendant's jack?

A. At the bottom of the pawl and at the side of the frame-work of the jack.

14 Q. It slides on an angle at the bottom?

A. Yes, sir; assisted by the inclined guide intermediate on the back of the pawl.

15 Q. Are you not mistaken about the guide being inclined, as you spoke of in your last answer, in defendant's model?

A. If that is a representation of it, I do not think I am mistaken, sir.

16 Q. What function does this guide that you speak of perform in enabling the pawl to engage with the teeth of the rack?

A. It guides the pawl laterally, keeps it square in front of the teeth, and being upon an incline the same or nearly the same as the base that the pawl rests upon in raising the lever it prevents the friction on the joints of the teeth from raising the pawl, serving as a guide to hold the pawl in place until the joints of the teeth slip past each other and the pawl engages with the teeth in the bar.

17 Q. Now, as a matter of practical utility, would the incline that you speak of as being on the bottom of the pawl in defendant's model perform any function toward forcing the pawl into the rack?

A. Yes, sir; in proportion to the amount of incline that it possesses.

18 Q. What incline is it; can you state; have you got a rule with you?

A. No, sir.

19 Q. From your eye, what would you judge the incline to be?

A. Well, probably five degrees.

20 Q. Now, with a pawl of two pounds or two pounds and a half would it slide on that incline by gravity?

A. Not with the care and attention that jacks are usually given, it would not.

21 Q. That is, practically, the incline in this defendant's
38 model performs no function of itself in assisting the pawl to dog into the rack?

A. It does in so far as it relieves the spring of just that much of the duty that the spring would have to perform alone were it not for the incline, beside the holding property of the pawl is largely augmented by the incline.

22 Q. Then outside of the spring the incline of this jack would perform no function?

A. It would be very unreliable without the spring.

23 Q. Practically, for the purposes for which jacks are used, would it be of any benefit at all?

A. I do not think it would without the addition of the spring in combination with the slight incline given to the bottom of the pawl.

24 Q. What resistance would a pawl of only two pounds or two pounds and a half offer to a spring in a jack of this kind?

A. That is a question that could only be answered by approximation.

25 Q. Give us your idea of about how much, practically.

A. Well, it might vary from half an ounce to four ounces, according to the smoothness of the surface and the lubrication; properly lubricated it might even exceed four ounces.

26 Q. For the purpose for which these jacks are used it would require a stout spring to work it with facility and to hold it, would it not?

A. Not as that jack is constructed, I should say not.

27 Q. But the spring would have to be sufficiently stout and strong to hold the pawl up against the teeth of the rack?

A. To force the pawl into the teeth. The inclined plane, I think, would hold the pawl there after it is put there.

28 Q. For the purpose of forcing it into the teeth would it not require a spring of considerable strength?

A. A spring sufficient to move the weight of the pawl is sufficient.

29 Q. Would not that also hold it there if the surfaces were horizontal?

A. Not with any degree of safety, after the teeth became a little worn.

39 30 Q. Could not that be protected by strengthening the spring?

A. The stiffer the spring the more sure the hold would be.

31 Q. Then would not a mechanic, in having a pawl of parallel surface to the bottom, have to make the spring sufficiently strong to hold it, being governed according to the duty required of it?

A. It would be his endeavor to do that.

32 Q. Then practically the only function performed by this incline is to assist the spring in a slight degree in holding the pawl into the rack?

A. I do not say it is the main function of the spring to hold the pawl into the rack; it is the inclined plane that holds it there and the spring assists in a very slight degree.

33 Q. Then, according to your views, the main function that forces the pawl into and holds it into the rack is the inclined plane and not the spring?

A. No, sir; the spring is the element largely that forces the pawl into the rack, but it is not the element largely that holds it there under the load; the inclined plane is the one that largely holds it.

34 Q. But that spring could be made strong enough to hold it there if the inclined plane was not used, could it not?

A. A spring can be made strong enough to hold it there, though I should not consider it safe with square teeth, as is represented, and when those teeth become worn it would be hazardous for you to rely entirely upon the spring.

35 Q. Will you say, as an expert, for all practical purposes in a jack that a spring could not be put there to hold this pawl into the teeth without the incline on the bottom of the pawl?

A. No, sir; I do not say so; a spring can be made and put there that will hold that pawl into those teeth.

36 Q. Would not any mechanic who understands his business put a spring there that would hold it?

A. It is presumable that he would endeavor to do that.

37 Q. You would, wouldn't you?

A. I should try.

38 Q. Do you know from experience whether or not teeth
40 constructed like those shown in the defendant's model—square, as you call them—would wear out in the use to which jacks are put under several years' use.

A. Yes, sir; they will wear, and where you depend upon the spring they are not safe, for I have had them so.

39 Q. Have you ever used one of the defendant's jacks?

A. No, sir; not the defendant's.

40 Q. Then, you do not know from practical experience in the use of defendant's jack, as a matter of fact, whether the teeth would wear sufficiently to make it an object to have anything besides the spring to hold the pawl up to the rack?

A. Not from practical experience. As a mechanic I would say that the continual friction on those teeth working in and out that they would wear, because the greater portion of the friction on those teeth is at the points instead of at the base, and they would wear.

41 Q. That would depend entirely on the degree in which they were lubricated and the amount of use to which they were put?

A. Yes; but the use of jacks is in sand and in the dirt and dust, so that it is very difficult to keep them lubricated to that degree that would dispense with that wear.

42 Q. Do you know anything about the state of the art with reference to lifting jacks prior to September 15, 1874, the date of the complainant's patent?

A. I have used jacks for over twenty-five years, of various makes and constructions and for various uses, and know of them through that kind of use largely.

Re-examination:

43 Q. What objection would there be, if any, in making the defendant's jack without the inclined guides and with a spring to do the holding?

A. The objection would be in depending too largely upon the spring, whose functions are at best uncertain, applied to that purpose.

44 Q. How would the stiffness of the spring which you speak of affect the operation of releasing the pawl?

41

A. The tension of the spring being great would add very materially to the difficulty in removing the pawl, as in the operation of lowering the jack, owing to its extra tension.

45 Q. Now, as a purchaser and user of a jack in raising large weights, such as locomotives, cars, and other heavy weights of that character, how much difference would you be willing to pay between a jack which used the inclined plane to hold the pawl and one that required a very stiff spring, as you have spoken of; what would you think their comparative service would be?

(Objected to as not proper re-examination, and as immaterial and incompetent.)

A. The difference in the price that I would pay for the two jacks would depend very much upon contingencies, but I would very much prefer a jack that dispensed with a spring in preference to using one embodying a spring for holding the pawl in place.

46 Q. How about the life and wear of the jacks; which do you think would be the best?

(Same objection as to the 45th question.)

A. The less friction in the pawl without the spring would add to its lifetime over one with a spring where the teeth ride past each other, as is necessary in taking their hold and in releasing themselves.

47 Q. Did you or not take into consideration the breakage of the spring? Would there be any hazard in that direction?

(Objected to on the same grounds as question 45.)

A. It would be a very serious element as against the use of a jack embodying a spring, and the stiffer the spring the more dangerous becomes the element.

Recross-examination:

48 Q. Mr. Rugg, could the defendant's jack be made to work without a spring to force the pawl into the rack unless you changed the shape of the teeth?

A. Not with any satisfaction, as it is constructed.

49 Q. It could not be made to work upright upon inclined
42 slots and pins, as shown in the complainant's model, without changing the shape of the teeth?

A. The teeth have but little to do in that matter. It is the inclined plane that would affect that; being of sufficient grade to allow it to slip into the teeth without the intervention of a spring does not necessarily affect the shape of the teeth.

50 Q. Does the incline of defendant's model drive the pawl into the teeth of the rack, or does the spring do that?

A. The inclined plane assists the spring in proportion to the amount of the incline. The spring is the principal element that puts the pawl against the lifting power, but the incline plane assists, so far as the grade is concerned, in relieving friction.

51 Q. Suppose the incline was made upon an angle of forty-five degrees, as shown in the complainant's patent, could that be used in the defendant's jack without changing the shape of the teeth?

A. Yes, sir.

52 Q. Without a spring?

A. Yes, sir.

53 Q. You are certain of that?

A. Yes, sir.

54 Q. You would give that as your opinion as an expert?

A. Yes, sir.

J. K. RUGG.

Complainant's counsel offers in evidence the complainant's patent, or a certified copy thereof, referred to in the foregoing examination.

And here complainant rests.

(Proper certificate.)

43 *Complainant's Rebutting Evidence.*

Examination of witnesses on behalf of the complainant, under the 67th rule in equity, as amended, pursuant to the annexed notice:

Present: E. E. Wood Esq., for the complainant, and W. G. Rainey, Esq., for the respondents.

By request of parties it is ordered that the depositions be taken by question and answer.

JACOB O. JOYCE, the complainant, being recalled and first duly sworn, deposeth and saith, in answer to interrogatories propounded to him by E. E. WOOD, Esq., of counsel for the complainant, as follows:

1 Question. Have you measured the angle of inclination to the horizontal of the bottom of the fall and of the stem of the fall in the lever jack from which you made the wooden model (exhibits complainant's exhibit) of "defendant's lifting jack;" if so, what do you find said angle to be?

Answer. I have, and find it to be fifteen degrees to the horizon.

Cross-examination by Mr. RAINEY:

2 Q. Have you ever tried to work the original jack from which this model was made without the spring behind the pawl; and, if so, would the pawl act so as to hold the rack bar in position as elevated by the level?

A. I have; it works, but sometimes rather imperfectly.

3 Q. Did you so use the lifting jack in lifting a car or other heavy load?

A. No; I tried it empty.

4 Q. Do you think that the original jack could be used practically for the purpose for which it was designed without the use of a spring behind the pawl?

A. I shouldn't think it entirely reliable.

5 Q. Do you think the jack could be used without the spring or some other means to force the pawl into mesh with the rack bar?

44 A. Well, I have already stated that I shouldn't think it at all times reliable, while it works; yet the spring is of assistance to it to make it a sure thing.

6 Q. Do you think such a jack could be sold to the railroads for the uses for which they want jacks without the spring behind the pawl, or some other means to force it into mesh with the rack bar?

A. From the test that I made, which was very slight, I should conclude that it would not be entirely safe. My test was very limted.

7 Q. Above question repeated to the witness.

A. As I have already stated, my test was very slight, and I did not test it with a view to ascertain that fact, but I would not want to risk it for that use in its present form without that spring.

8 Q. As a manufacturer of lever jacks for the trade would you put into the market such a jack without the spring?

A. I don't believe I should.

Redirect examination by Mr. WOOD:

9 Q. If on testing the jack under load without the spring and in lifting heavy weights you found it at all times reliable, do you think it would sell then without the spring?

A. Well, if I found it to work under a load any better than while empty or sufficiently well if it brought it in contact it would hold the load securely, then it would sell.

J. O. JOYCE.

JOHN W. HILL, Esq., was next called and duly sworn. He testified as follows:

Examined by Mr. WOOD:

10 Q. State your name, age, residence, and occupation.

A. John W. Hill; mechanical engineer; age, 33 years; residence, Cincinnati, O.

11 Q. What is your experience as mechanical engineer, and what opportunities have you had for becoming familiar with mechanical arts as shown in the patented devices in this country, and in the comparison of various devices and drawing deductions as to agreements and differences?

45 A. I have had eighteen years' continuous experience as a mechanic and mechanical engineer, during which time I have frequently been called upon to examine and compare many mechanical devices, and have frequently been sworn as an expert in patent and civil suits involving mechanical and engineering questions. I have prepared and prosecuted many applications for patents and believe I am competent to examine letters patent for mechanical devices with which I am familiar and express an opinion upon the intent and scope of the same.

12 Q. Please examine letters patent now shown you, No. 154,989, dated September 15, 1874, issued to Jacob O. Joyce, the complainant herein, and state if you have read and examined the same; also letters patent 11303, dated July 11, 1854; letters patent No. 36144, dated August 12, 1862; letters patent 51469, dated December 12, 1865; also letters patent No. 56111, dated July 3, 1866; also letters patent, dated August 16, 1870, No. 106,417; letters patent No. 115,126, dated May 23, 1871.

A. I have examined the patents referred to in the question—the drawings only of patents Nos. 11303 and 36144—and believe I understand the intent and meaning of the inventions therein described and claimed.

13 Q. Are you familiar with the lever jack, a drawing of which is now shown you, manufactured by James Leffel & Co., Springfield, Ohio? State if you have examined Exhibit "A," complainant's jack, and Defendant's Exhibit Mosher Jack No. "O," and do you understand the construction and operation of the same?

A. I have used the Leffel lever jack in my earlier experience in machine shops and understand the construction and mode of operation of the same. I have also examined Complainant's Exhibit "A,"

Joyce lever jack, and Respondent's Exhibit "O," Mosher lever-jack, and believe I understand the construction and mode of operation of said exhibits.

14 Q. What experience, if any, have you had in building lever jacks?

46 A. I have had considerable experience in the construction of what are known as the Maxton lever jacks, building the same while superintendent of the Herman & Herchelrode Manufacturing Co., at Dayton, O., during the years 1874 and 1875. The Maxton lever jack consisted of a frame of cast iron, with a toothed rack bar of wrought iron and a pivoted lever mounted between jaws or cheeks in the frame, and carrying at its point or inner end a pivoted pawl, which engages with the teeth of and raises the rack bar, and a pivoted pawl mounted between jaws or cheeks in the upper part of the frame, said pawls being of one tooth and actuated by springs.

15 Q. Please compare the device specified in the first claim of the Joyce patent, No. 154,989, and, in the second, object of the invention in said specification, with the said patents of F. B. Smith, D. Fasig, L. Smith, J. B. Massa, Wm. M. Smith of May 23, 1871, and August 16, 1870, and also the Leffel jack. State what you find to be the invention of said Joyce, in view of the state of the art there presented, and whether or not you find anything which fairly indicates the construction and operation of such a jack as specified in said Joyce patent, to which your attention has been called, or whether the state of the art in any way limits the construction of said first claim.

A. I have examined the claim of complainant's patent referred to in the question, and have also examined the devices contained in respondent's exhibit, also recited in the question, and have made the comparison of complainant's invention with the previous devices, as requested. In the light of the state of the art, as presented to me in the question, I am of the opinion that claim one of complainant's patent fairly embraces the invention of Joyce in the adaptation to a lever jack of a holding pawl to retain the rack bar and load in an elevated position, said pawl moving in a rectilineal path at an angle to the face of the rack bar, the face of said pawl being so guided as to preserve a constant parallelism with the face of the rack, and

47 said pawl having an angle of inclination to a perpendicular drawn from the axis of the rack bar greater than the angle of frictional repose. Said angle, as a matter of practice, being such as to cause said pawl to slide downward and forward, by the force of gravity, to engage with the teeth of the rack bar, said pawl being also of several teeth, in order to distribute the load on the rack bar, and consequently, on the pawl.

Construing Joyce's invention as a lever jack containing a frame, a toothed rack bar, a toothed lifting lever, arranged to engage and disengage with the teeth of the bar, and a tooth pawl arranged to distribute the load between several teeth and arranged to travel forward and downward to engage with the teeth of the rack bar in an angular plane, then I am clearly of the opinion that none of said respondent's exhibits named in the question contain any ma-

terial part of said invention, reference being always had to the opinion previously expressed that Joyce's invention lies in the assembling together of the several described elements entering into the construction of said lever jack.

Comparing the Joyce invention with drawing of respondent's exhibit patent No. 11303, I find in said exhibit a gravity pawl of one tooth, but said pawl is a pivot pawl and moves to and from the rack-bar in a curvilinear path. It does not show a pawl of several teeth; it does not show a pawl moving in a plane; it does not show a pawl having a motion in a rectilineal path at an angle to the rack bar; it does not show a pawl which, in its motion toward and from the rack bar preserves a constant parallelism with said bar. In fact it can scarcely be said to show an operating pawl at all, for I am of the opinion that a quick lift of the rack bar would throw said pawl beyond a perpendicular position, in which event it would fail to perform the functions of a pawl, which are in the case of lever jacks to automatically engage and disengage with the toothed rack bar. Assuming, however, that the pawl of respondent's exhibit drawing of patent No. 11303 would work, it then contains only one of the several functions of the Joyce pawl—that is, it acts, if at all,
48 by its inherent weight. I should regard a lever jack otherwise constructed, as Respondent's Exhibit No. 11303, as incomplete without the addition of a spring to prevent the throwing of the pawl beyond a position from which it would return by gravity.

Comparing complainant's invention with respondent's exhibit drawing of patent No. 36144, I find said exhibit to show a lever jack of very crude form, containing a spring pawl working at a right angle to the rack bar. The jack shown in the drawing would not be an operative device for ordinary use, but passing over this view of the exhibit the holding prawl requires a strong spring to hold it in contact with the tooth of the rack bar and sustain the load. It is, moreover, a single-tooth pawl. Joyce's pawl is of several teeth, moves in an angular plane, and requires no spring to hold it in contact with the teeth of the rack bar. There are no points of similarity in the two devices.

Comparing complainant's invention with respondent's exhibit, L. Smith's patent No. 56111, I find said exhibit to contain a pawl moving in a plane at a right angle to the rack bar and sustained in contact with the tooth of the rack bar against the load by a strong spring. It is also a one-tooth pawl. There are no points of construction in the holding materially different from that of the preceding (respondent's) exhibit, and no points of similarity in this device and Joyce's invention.

Comparing complainant's invention with respondent's exhibit, J. B. Masser patent No. 51469, I find said exhibit to contain a sash holder, consisting of a serrated wedge mounted in a metallic case set in the jamb of the window and engaging with the edge of a window sash. This exhibit shows none of the details found in Joyce's jack, nor, in fact, in any other jack, and does not admit of comparison with Joyce's invention.

Comparing complainant's invention with respondent's exhibits, Wm. M. Smith's patents Nos. 106,417 and 115,126, I find said exhibits to contain a cotton press of complicated construction,
49 as shown in the drawings. It does not show a lever jack containing the customary elements of a device of this character; there is no hollow frame, no toothed rack bar, no actuating lever to raise a rack bar, no holding pawl to prevent said rack bar from receding into its frame under a load; in fact, nothing that bears any resemblance to a portable lever jack.

I am therefore constrained to the opinion that none of the exhibits set up by respondents and recited in the question contain Joyce's invention or any substantial equivalent for it. None of the exhibits embrace a lever jack containing a frame, a rack bar, an actuating lever, and a pawl of several teeth moving in a plane at an angle to the rack bar and moving forward and downward to engage with the teeth of said bar, and operating by the inherent weight of said pawl moving down an inclined plane to press against the teeth of the rack bar and sustain a load.

The construction and mode of operation of Joyce's invention being, in my opinion, substantially different from that of the devices shown in respondent's exhibits.

In the light of the state of the art as presented to me in the question, I find nothing limiting the invention shown and described in complainant's patent except as such limitation may be presented in Joyce's invention as I have defined it. Joyce does not pretend to have invented a lever jack in all its details, but he has assembled together a frame, a lifting rack bar, an actuating lever, and a many-toothed holding spawl in a novel manner.

16 Q. What holds the pawl in the Joyce jack against the rack bar to sustain the weight of the load?

A. The inclined seats formed by the grooves or slots in which the pawl moves.

17 Q. Please examine the Defendant's Exhibit Mosher Jack No. O. State if you have measured the inclination of the pawl in its seat and of the pawl stem; if so, what is the angle with the horizontal plane?

A. I have examined Respondent's Exhibit Mosher No. O Jack and find the angle to the horizon of the inclined seats against
50 which the pawl is thrust whilst sustaining a load to be ten degrees.

18 Q. Do you consider that substantially a gravitating or a spring-acting pawl?

A. I consider it substantially a gravitating pawl, moving in a rectilineal path at an angle to the axis of the rack bar, the face thereof preserving a constant parallelism with the face of said bar. It is also a pawl which moves forward and downward to engage with the teeth of the rack bar; it is also a pawl of several teeth. It is substantially the pawl described and claimed in Joyce's patent.

19 Q. I have removed the spring from behind the pawl in Mosher jack. Please operate it under a load and state whether or not it operated practically and in the manner of the device specified in

said Joyce patent and whether or not you consider it a mechanical equivalent of said patented device.

A. I have operated the Mosher jack, as requested in the question, and find said jack to operate without the spring perfectly under a load, and regard the construction and mode of operation of the pawl of said jack to be the substantial equivalent of complainant's patented device.

20 Q. I notice you omitted to make a comparison of Leffel with said Joyce patented jack, as requested in question 15. Please make the comparison inquired of and state whether or not they are substantially different or substantially the same.

A. I have made a comparison of complainant's patented invention with the Leffel lever jack and, as I remember the construction of said Leffel jack, I can distinguish no material points of similarity. The part of the Leffel jack pivoted on a knife edge is a pawl of one tooth, moves in a curvilinear path to and from the rack, whilst the pawl of complainant's invention is not a pivoted pawl; on the contrary, it moves in a plane at an angle to the face of the rack bar; it is a pawl of several teeth and has a motion downward and forward to engage with the teeth of the rack bar. I regard the devices recited in the question as substantially different in construction and mode or operation.

51 Cross-examination by Mr. RAINEY:

20 Q. What is the object of the spring as used in the Mosher jack?

A. If by object is meant friction, there is none; the jack being capable of performing the work required of it without the spring, as demonstrated by an experiment during this examination.

21 Q. Do I understand you, then, as giving it as your opinion that the spring as used in the Mosher jack is perfectly useless?

A. I regard the spring in the Mosher jack to which my attention has been called as unnecessary, the jack being capable of performing its functions without the spring.

22 Q. Can you state whether or not in the use of the Mosher jack it can be kept in such a condition that the pawl always operates to mesh with the teeth of the rack bar without the use of a spring?

A. There, of course, is a limit to the capacity of the pawl of the Mosher jack to perform its functions acting alone by gravity; but what that limit is could only be determined by continuous use under varying conditions. Assuming the absence of a lubricant to collect grit and dust in the pawl recess, I am of the opinion the pawl would continue to work indefinitely; if, however, heavy oil should be used to lubricate the pawl and the guides or ways in which it moves should become gummed the gravity would not be sufficient to actuate the pawl. This, however, would be true of any pawl constructed upon the same principle and of a greater angle of inclination.

23 Q. Have you had any practical experience in the use of lever jacks such as the Mosher? And state whether or not it is liable to have more or less dust and dirt, both on the seat and inclined base and the teeth.

A. I have had considerable experience in the construction and use of lever jacks, and do not think the ordinary use, in proper hands, assumes an accumulation of dust or grit in the pawl recesses;
52 upon the contrary, with an absence of lubrication, which is not necessary in a well-constructed lever jack, there should be no dust or grit accumulated in the pawl recess in use. I am rather inclined to think the operation of the pawl of the Mosher jack would improve in time by the reduction of the friction by reason of the better adaptation of the surfaces to each other from continued wear.

24 Q. Is not the jack liable to become rusted in its parts from exposure to the weather or the use to which they are usually applied on railroads so that it is necessary to use lubricants on it?

A. Railway jacks, when out of use, are generally housed, but should rust occur sufficiently to impede the free operation of the pawl some agent capable of removing the rust must be employed. This condition of rust by exposure, however, is liable to prevent the free operation of any form of pawl, and is employed as an expedient, not as an ordinary requirement.

25 Q. Is it not the usual custom to use lubricants to prevent rusting in parts liable to rust rather than an independent agent to remove the rust?

A. No; a dressing of thin coal oil, which is not a lubricant of a character to gum, is generally employed. In this connection I would suggest that if a proper oil not liable to gum or stick were employed there would be no objection to its use; neither would it be necessary with a jack in good order.

26 Q. Would not the parts of the Mosher jack which are exposed to friction rust unless the same was in constant use or protected from the weather?

A. If the Mosher jack was unhoused and uncared for it is possible that the surfaces not covered with paint would rust. An application of thin coal oil or benzine and a limited reciprocation of the pawl would remove this rust and place the jack in condition for use.

27 Q. Would not a surface covered with such lubricants accumulate dust when used out-of-doors with railroad cars, as most lever jacks usually are?

A. No; not if covered with the material or lubricants
53 suggested in my previous answer, both agents being of such a votatile nature that by the time the pawl was limbered up there would be no lubricant left to accumulate dust.

28 Q. Suppose the ordinary oils as used about railroads and machinery generally instead of coal oil and benzine and lubricants, would not then the Mosher jack be liable to accumulate dust and dirt and grit?

A. If the ordinary lubricating oils about railroads were used in proper quantity to limber up a sticking pawl it would not be sufficient to accumulate dust in the pawl recess.

29 Q. Then in no event would it be necessary to use a spring in order to make the pawl of the Mosher jack to perform the functions designed?

A. I can see no use for a spring behind a pawl for lever jacks constructed upon the principle shown in the Mosher jack, as said jack was experimented with during this examination.

30 Q. Have you ever seen the Mosher jack in practical use, and are you prepared to state that while in practical use the spring is useless?

A. The only Mosher jack which I have seen and examined is the one marked Respondent's Exhibit No. O Mosher Jack in this examination; and basing my opinion upon the performance of this jack with the spring removed from the pawl I regard the spring as an unnecessary and useless adjunct.

31 Q. In answer to question No. 16 you say the inclined seats formed by the grooves or slots in which the pawls move holds the pawls of the Joyce jack against the rack bar to sustain the weight of the load; please refer to the drawings of the Joyce patent and designate by letter which you call the inclined seats?

A. The slots D D of figure 1 and the grooves D D of figure 2. When pressure is brought upon the pawl by a load the supporting pins C C are pressed against the lower surfaces of these guides, D D.

32 Q. Does gravity assist in any manner in holding the pawl of the Joyce jack against the rack bar?

54 A. Yes; the intimacy of contact between the pawl and face of the rack bar is increased by the weight of the pawl acting through the angle of inclination, providing the slots or grooves D D are constructed with clearance; should the slots or grooves be constructed without clearance, then gravity would not assist in increasing the contact between the faces of the pawl and rack bar; this is entirely a matter of construction; in either case the load is borne finally by the seats upon which the pawl rests in the slots or grooves.

33 Q. Please explain. What do you mean by "clearance?"

A. Clearance is an addition to the length of the slots or grooves in which the pawl moves in excess of the motion thereof—that is to say, unfilled when the pawl is down at the lower ends of the slots or grooves.

34 Q. Suppose there was sufficient clearance, would not the pawl act in these slots by means of the gravity?

A. If by act is meant to force the pawl into more intimate contact with the rack bar it does to an inappreciable extent when compared with an ordinary load.

Adjourned to May 9, 1882, 11 o'clock a. m.

CINCINNATI, O., *May* 9, 1882—11 a. m.

Met pursuant to adjournment.

Same parties present as before.

Cross-examination by Mr. RAINEY:

35 Q. Are either of the elements shown in the Joyce patent new for the purposes for which they are there used—that is, for lever jacks? You may confine your answer to the first claim.

A. In the light of the state of the art as shown by respondent's exhibits and by my own previous knowledge no one proposed the use of the several-toothed holding pawl for lever jacks prior to the date of Joyce's patent.

36 Q. Do you not find in the Masser sash holder patent, No. 51469, and the W. M. Smith, No. 106,417, several teeth holding pawls?

A. I do not. I find in the Masser patent a wedge bolt, ser-
55 rated upon one edge. This wedge bolt is not a pawl in the sense that a pawl is used in the description of lever jacks. The wedge bolt of the Masser patent is similar in some respects to the old-style notched key for the stub ends of connecting rods, and is essentially a wedge. The Smith patent shows and describes a serrated block to serve as a fulcrum for the actuating lever and a similar serrated block to act as a detent whilst shifting the first block for a new grip of the lever. The Smith patent describes these blocks as pawls, but not as pawls for lever jacks.

37 Q. Are not the "serrated bolt," shown in the Masser and the "serrated block" of the Smith, pawls?

A. Not in the sense that a pawl is a specific device for retaining an element against a resistance or a load. A pawl is a detent of a specific character, and all detents are not pawls. The Masser device is just what the specification describes it—a wedge bolt—whilst the serrated block of the Smith patent is termed a pawl in the specification and may be considered a pawl in the sense in which it is used in said patent.

38 Q. Is the Masser device in any sense a pawl?

A. I think not.

39 Q. Is Mr. Joyce confined in the use of his pawl to any specific purpose?

A. Yes; in that it is employed to retain in an elevated position the rack bar under a load.

40 Q. Is his first claim broad enough to cover all uses of pawls against a rack bar under a load?

(Question objected to as calling for construction of the claim.)

A. I think his first claim is fairly limited to the uses of pawls in lever jacks.

41 Q. Were pawls with two or more teeth used before Joyce's that were adapted to move in inclined slots, grooves, or guides formed in the frame enclosing the pawl?

A. The Smith patent describes a block or pawl for cotton and hay presses, mounted in a movable pawl box, which pawl box is not a part of the frame of the machine, said pawl box being fur-
56 nished with pins engaging with grooves in the block or pawl to cause it to slide down for a new hold at each stroke of the lever.

42 Q. Is not Joyce confined to a "pawl adapted to move in inclined slots, grooves, or guides formed in the frame?"

(Objected to as before.)

A. Joyce is undoubtedly limited to a pawl moving downward and forward to engage with the teeth of the rack bar of a lever jack.

43 Q. Such movement being by means of inclined slots, grooves, or guides in the frame?

A. Joyce's pawl moves in an inclined path downward and forward to engage with the teeth of the rack bar and is guided by slots or grooves formed in the frame of the jack.

44 Q. What is the object of the pawl in the Joyce jack?

A. To hold the toothed rack bar in an elevated or extended position under a load.

45 Q. How is this pawl made to operate?

A. By means of the inclined ways in which it travels to engage with the teeth of the rack bar.

46 Q. Does gravity enter into "the means" by which it is made to engage with the teeth of the rack bar?

A. Gravity causes the pawl to move downward and forward in the inclined ways.

47 Q. Would the first claim of Joyce cover a pawl for such purposes that did not operate by means of gravity and inclined slots or grooves in the frame?

(Objected to as before.)

A. Joyce's claim is limited to a pawl moving downward and forward in inclined ways to engage with the teeth of the rack bar. No specific angle being described in Joyce's patent, I can conceive a pawl which would be embraced in the claim and not act by gravity alone; in brief, I do not think Joyce's first clain limits the angle of the inclined ways, and an angle less than the angle of repose or friction might be employed and still accomplish the object of Joyce's invention, as set forth in the first claim.

57 48 Q. I observe you use the words "inclined ways," as descriptive of the means by which the pawl in the Joyce device is made to move. Does Joyce use such terms to describe the means he invented?

A. I can conceive no material difference between an inclined way and an inclined guide; both terms mean the same thing. The language of the Joyce patent is inclined slots, grooves, or guides, and those terms may be substituted in all my answers containing "inclined ways" without changing the meaning or intent thereof.

49 Q. Please examine the patent No. 116,656, to W. C. Williamson, and state whether it does not show "a pawl with two or more teeth and adapted to move in inclined slots, grooves, or guides formed in the frame?

A. I have examined the Williamson patent and find it to contain, as an element of a safety device for hoisting cages or elevators, a serrated wedge, which wedge is caused to engage with the even surface of the guide rails when the platform drops by breaking of the lifting rope. This wedge is substantially similar to the wedge, both of the Masser patent, previously examined. The serrated wedge of the Williamson patent moves, if it can be said to move at all, in inclined slots or guides.

50 Q. Is not the device referred to in the Williamson patent a pawl?

A. They are described as "wedge-shaped pawls" in the specification.

Cross-examined by Mr. HOSEA:

51 Q. Please state your definition of pawl.

A. A specific device for retaining an element of a machine against a load, and which is capable of automatic engagement and disengagement with said elements.

52. You have stated that you did not consider the Masser device a pawl. Will — please explain wherein the part of the Masser device fails to come within your definition just given?

A. The definition just given is consonant with a pawl
58 toothed or smooth, either holding directly by interposition under the load as a toothed pawl and a toothed rack bar or indirectly as a friction pawl acting upon an even surface. The Masser device shows neither of the general constructions I have in view, and is not a pawl in the sense that a pawl is used in this examination.

There are devices embraced in the definition as an automatic detent which cannot be considered as pawls; as, for instance, the plug engaging with the notched sector of a locomotive reverse lever; this is an automatic detent, but not a pawl.

53 Q. You do not appear to have understood the question, which asks you to point out the reasons, if any, why the Masser device, E, fails to come within your definition. Please answer briefly and exactly the question as put.

A. The Masser device is an automatic detent and may be embraced in the general definition given of a pawl, both being specific devices to retain an element against a load and both acting automatically. The Masser device, however, is a wedge with a serrated edge, and is neither shown nor described as a pawl, but as a "wedge bolt."

54 Q. Please refer to your definition of pawl given in answer to question 51 and state specifically whether the Masser device, E, comes within it.

A. The Masser patent shows a specific device for retaining an element against a load and is supposed to act automatically. This, however, does not alter the fact that it is a wedge bolt, so shown and described. The Masser device is an automatic detent; a pawl is an automatic detent. I cannot construe all automatic detents as pawls in the light of the locomotion illustration given.

55 Q. Question repeated and a categorical answer requested.

A. The definition of a pawl previously given is a specific device for holding an element against a load, capable of automatic action,
&c. The Masser wedge bolt is embraced in the "definition"
59 as a "specific" device. The "pawl" and the Masser "wedge bolt" are both embraced in the definition, which is a "specific" device for a given purpose, but are still, in my opinion, different devices.

56 Q. You state that the Masser holding device is not a pawl in the sense that a pawl is used in the description of lever jacks. Please state what mechanical function the pawl performs in the jack which the wedge does not perform in the Masser device.

A. The pawl in the lever jack engages with corresponding teeth in the rack bar. There is no toothed rack bar in the Masser device; in fact, there is no rack bar at all. The pawl in the lever-jack has a "seat" which practically limits the "wedging" action. There is no "seat" for the "wedge" in the Masser device, and the "wedging" effect is practically unlimited.

57 Q. You explain that by "seat" you mean the lower limit of the slats. Do you state that this "seat" has anything to do with the action of the pawl as a "retaining element" or holding device?

A. I think it has; for without a seat or an abutment constructed in the frame of the jack, against which the pawl is thrust, it would fail entirely to sustain a load.

58 Q. Do you give it, then, as your opinion that the lower limit of the slots or "seat" in the Joyce device is essential, in that the pawl would not sustain the load if the slots were continuous below through the frame?

A. I have defined the seats as the lower sides of the slots. It is immaterial whether the slots are prolonged or not, the seats still remain as defined and receive the thrust of the load through the pawl.

59 Q. Your attention is again called to the question which you do not answer: Do you regard it an essential feature of the Joyce holding device that inclined slots should terminate as shown in the drawing or not?

Counsel for complainant instructs the witness that he need not answer the question unless he chooses to, as he has already answered it.

60 A. I have previously answered that the slots may be prolonged without impairing the functions of the pawl. The seats, which receive the thrust of the load, still remaining on the lower surfaces of the slots.

60 Q. Will you, then, define more particularly, with reference to the Joyce drawing, "the seat which practically limits the wedging action," which you say does not exist in the Masser device, and by the absence of which the "wedging effect is practically unlimited?"

A. The lower surfaces of the slots form the seats in the Joyce jack, which limit the wedging effect. There is no surface or other form or construction of seat in the Masser device to limit the wedging effect, the construction shown in the Masser device being such that by the application of sufficient load to the window sash it might be crushed transversely by the action of the "wedge bolt," the angle of the surface against which the "wedge bolt" of the Masser device slides being so small that the wedge may be driven as a taper key.

61 Q. You state that in the Joyce device it is immaterial whether the slots are prolonged or not. Now, suppose the slots were pro-

longed through the frame, in what respect would the Joyce pawl then act differently as a mechanical holding device from the Masser holding device?

A. The difference would lie partly in the seats to be found in the Joyce device and the entire absence of a seat in the Masser device, and partly in the difference between the natural action of a wedge when driven between two surfaces and the action of a pawl as shown in lever jacks, and partly in the manner in which the pawl of the Joyce jack engages with corresponding teeth in the rack bar and the Masser wedge bolt. I do not regard the teeth on the Masser device as essential to its functions, it being capable of wedging a window sash quite as well, though not so quickly, if these teeth were removed. The pawl of the Joyce jack would be useless without the teeth.

62 Q. Would it make any difference, in your opinion, in the Joyce device to give the slots a greater inclination—for example, that of the inner surface of the guide slot in the Masser device?

61

A. Measuring the inclination of the Joyce slots or guides by an arc struck from the intersection with the axis of the rack bar of a line drawn through the center of the incline slot above such intersection, then a material reduction of the angle would not answer in a pawl for a lever jack, the wedging effect being inversely as the angle of divergence of the lines recited above. Such a construction would subject the jack frame to unnecessary strains, and make it of slow action in moving the pawl into and out of the contact with the rack bar.

63 Q. Please refer to the drawing of the Smith patent of August 16, 1870, and state whether you find therein a lifting bar, marked C, a many-toothed holding pawl, marked F, and an operating lever, marked G, and state wherein these elements differ with reference to their joint operation from the pawl-lifting bar and operating lever shown in the Joyce patent.

A. In the Smith patent there is shown a toothed bar, a several-toothed holding pawl, and an actuating lever. This device differs from the Joyce jack partly in the absence of the movable rack bar, partly in the absence of the pawl box formed in and a part of the jack frame, partly in the general action of the pawl of the Smith press, which has several motions instead of a single motion, as in the Joyce jack. Besides, the devices are substantially different in the manner in which the elements are brought together for their specific purpose.

64 Q. In what respect does the lifting bar or ratchet bar C of the Smith patent differ from the Joyce rack bar in respect to its being operated and sustained by the pawl?

A. The bar C of the Smith patent is rigidly attached to the frame of the machine and has no motion at all; it is simply a toothed post, down which the actuating lever and pawls and detents travel. The principal difference is in the fact that the rack bar of the Smith device is immovable and is not sustained by the pawl, and that the rack bar of the Joyce jack is movable and is sustained by the

62 pawl. Besides, there are two rack bars necessary in the Smith device, and only one rack bar in Joyce's lever jack.

65 Q. The only difference, then, is that in the Smith invention the rack bar is fixed and the frame moves, and in the Joyce device the frame is fixed and the bar moves; is that correct with respect to the question just put?

A. In the Smith device the frame is stationary. A platen, however, mounted in the frame, moves up and down. The difference between the devices referred to is that the Joyce jack contains a movable rack bar, which is supported by a pawl mounted in the jack frame, and the Smith device contains an immovable rack bar, which is not supported by a pawl, which pawl, also, is not mounted in the frame. The devices are different by construction for different purposes.

66 Q. Would you consider a many-toothed pawl in a jack moving on inclined guides of too low an inclination to actuate the pawl by gravity as within the Joyce invention, as defined by his first claim?

A. Yes.

67 Q. Then it is not essential, in your view of the Joyce invention, that the pawl should be actuated by gravity, provided it moves in or on surfaces or guides inclined from a horizontal plane; is this correct?

A. I think the Joyce pawl may be caused to work at such an angle that gravity alone would not move it into contact with the rack bar, and still would be consistent with Joyce's invention, in that he sought to construct a lever jack, the holding pawl of which should be forced into the embrace of the toothed rack bar proportionally to the load, and at the same time cause this pawl to move in guides of such an angle as to form seats to receive the thrust of the load and limit the wedging action of the pawl. Of course, a Joyce jack, the pawl of which moves in an angle to the horizontal less than the angle of repose, would require an auxiliary force to aid gravity to move it forward.

68 Q. Will you please answer this question with a simple yes or no? Is it, in your view of the Joyce invention, an essen-
63 tial feature that the pawl shall be actuated by gravity in its inclined slots or guides?

A. I do not consider it necessary that the pawl should be constructed to act by gravity alone to be embraced in the Joyce invention.

69 Q. Have you examined the statements of Joyce as to his object of making this invention as set forth by himself in his patent?

A. I have examined the Joyce patent, drawing, and specification, and find two objects of invention set forth therein.

Counsel for defendant, before closing the cross-examination, requests complainant's counsel to consent to the further taking of testimony by the defendants on the question of the alledged operativeness of the Mosher jack as represented in this case by Defendant's Exhibit No. O, without the actuating spring of the pawl, this point having been first suggested and claimed during the examina-

tion of the present witness without previous notice of any kind to the defendant or his counsel.

Counsel for complainant replies that the examination of this witness was commenced on the 15th of April and continued over to this date, May 9th, at the earnest solicitation of Mr. Rainey, who said he could not be present conveniently sooner, and that he agreed to finish in one day, and that the case should go to trial at the June term; no notice was given at that time of any request to take further testimony; that to-day Mr. Rainey concluded the questions he desired to ask, and counsel for complainant consented to allow Mr. Hosea to come in and ask additional questions; that the entire day has been consumed and a further delay necessitated, as complainant's counsel thinks, by the reason of two different counsel in the cross-examination, and he cannot consent to any further delay of testimony, which, in his opinion, would shed no light upon the subject.

Counsel for defendant states that he does not consider that the above-stated points bear upon the question at issue. He is not in the case by a consent or allowance of complainant's counsel, although fully recognizing the courtesy shown during this ex-
64 amination. The postponement was due, as counsel was well aware, to engagements of both defendant's counsel in trial of cases in other circuits, which have practically taken all the intervening time up to the present, and the substitution of one of defendant's counsel for the other during the examination was a mere matter-of-business convenience. The question referred to is one in the nature of a surprise upon the defendant, and has been stated during the examination by either Mr. Wood or Mr. Hill, counsel is not advised which, was a discovery made after the defendants had closed their testimony and during the examination of the present witness; the request, therefore, is again made in the interest of simple justice to all parties and of fairness to the court in order that the discovery or alleged fact may be explained if possible; if this request be refused, notice is given that to-morrow morning, or as soon thereafter as counsel can be heard, an application will be made to court for leave to take this testimony.

Assurance is given that if request be granted by counsel the testimony will at once be taken and the case brought to a hearing at the June term, so far as any effort on the part of the defendant is concerned.

Counsel for complainant having no reply to the above, notice is given as above.

Adjourned, by consent, to May 10, 1882, 3 p. m. o'clock.

J. H. CHARLES SMITH, *Notary.*

MAY 10, 1882—3 p. m.

Met pursuant to adjournment.
Present: Counsel for complainant.

Redirect examination by Mr. WOOD:

70 Q. In answer to cross-question No. 47 you allude to the angle of friction or repose; what is that angle understood to be, with metal on metal, by the best mechanical authorities with which you are acquainted, and is the angle the same when the body is at rest and in motion; if not, which is the greater?

65 A. The angle of friction or repose is given by Morin as eight degrees, although later experiments, particularly Bochet, have shown 7.5 degrees to be a more correct angle of friction. Of course these angles assume metallic surfaces in good condition and unlubricated. The angle of frictional repose is greater than the angle of motion—that is to say, the friction co-efficient of rest is greater than the co-efficient of motion. Thus, if the greatest angle at which a body would rest upon a plane surface is eight degrees any increase of the angle would produce motion due to the inertia of the body itself, and after this motion was established the angle of the plane surface might be reduced to less than eight degrees without destroying the motion.

71 Q. Now, in an employment like the Mosher lever jack, would it be possible to construct the pawls so that they would not start to operate by gravity alone at an angle of even fifteen or more degrees?

A. It would be possible to construct a Mosher jack, the inclined ways of the pawl box having an angle of fifteen degrees or more, measured from the horizontal, in which the pawl would not work by gravity alone; but such a jack would be imperfect in the construction and would undoubtedly contain defects of workmanship.

72 Q. If in such a pawl as you have described a spring were added to assist in starting the pawl, would gravity still act in the forward and downward movement of the pawl?

A. Gravity would undoubtedly act to the extent of the weight of the pawl; it might be insufficient to overcome the frictional resistance of an irregular or rough or poorly finished surface, but its force would neither be destroyed nor diminished thereby.

73 Q. Do you find in any one of the defendant's exhibits to which your attention has been called a stationary frame having a pawl box in which is seated a many-toothed pawl moving forward and downward to the rack bar at an angle or on an incline way to

66 automatically engage with the rising and falling rack bar, adapted to sustain a load lifted by said rack bar in the manner shown and described in the Joyce patent, or any device fairly indicating such an employment or having an analogous mode of operation?

A. No; I do not.

74 Q. Can a many-toothed pawl in a lever jack substantially like Joyce's be advantageously used except with an inclined seat?

A. I think not.

JOHN W. HILL.

(Proper certificate.)

Defendant's Testimony.

Depositions of sundry witnesses taken before me, Matthew J. Day, a notary public within and for the county of Hamilton, in the State of Ohio, resident at Cincinnati, pursuant to the annexed notice, and at the time and place therein specified, to be read in evidence on behalf of the defendant in an action pending in the United States circuit court for the southern district of Ohio and eastern division, in equity, wherein Jacob O. Joyce is complainant and The Chillicothe Foundry & Machine Works Company *et al.* are defendants.

Mr. L. M. Hosea being present on behalf of the defendants and Mr. E. E. Wood, of the firm of Wood & Boyd, on behalf of the complainant.

It is stipulated by and between the parties, through their respective counsel above named, that the depositions taken under the annexed notice shall be taken in short-hand by the notary, and that a transcription thereof shall be made and filed, and the notary is authorized to sign the witnesses' names to their respective depositions.

JAMES W. MCCORMACK, of lawful age, being by me first duly cautioned and sworn, deposes and says as follows:

Examined by Mr. L. M. HOSEA:

67 1 Question. You are the same James M. McCormack that has heretofore testified in this case, are you not?

Answer. Yes, sir.

2 Q. You are in charge of the iron bridges of the Marietta & Cincinnati railroad and have been for some years past?

A. Yes, sir.

3 Q. You are and have been familiar with the use of lifting jacks for twenty-five years or more; is that correct?

A. Yes, sir.

4 Q. Have you at any time made any experiments or taken any steps to ascertain whether the Mosher jacks will operate when the spring is removed from the rear of the pawl?

Mr. WOOD: I object to the question as not being within the order.

A. Yes, sir.

5 Q. Please state in detail what effort you have made and what the result was.

Mr. WOOD: That is also objected to.

A. At the freight yard of the Marietta & Cincinnati railroad, here in Cincinnati, I took two of the Mosher jacks—one was an old jack—one of the first made by Mosher. I picked the jack up in the yard where it was being used and it was, of course, dirty and some sand in it. I took the pawl out and then took the spring out, placed the pawl right back again in its seat without cleaning it or anything of the kind. I then placed the jack straight up and down, as near as

I could by the eye, and worked the lever, and the pawl would not move forward so as to engage its teeth with the bar. I then leaned the jack over until the pawl would fall into its place and engage the teeth. I had no way of ascertaining definitely how much I leaned the jack over to cause it to engage, but I should suppose somewhere about that angle (indicating the angle).

I then took a jack which, according to Mr. Mosher, was made about two years ago and tried that jack in the same way, and
68 I had to lean that over also, although I did not lean that quite so far to cause it to engage. They were both in the condition in which they were used, more or less dirty, and some sand on them. That is all I done until yesterday, when I went to the shop where are were made, and we tried four jacks that had never been in use at all. Each one were placed on the pavement and wedged up until they were perpendicular; the spring was taken from behind the pawl and some oil placed under the pawl and on the seat, first taking some waste and wiping out the seat clean, then oiling it and putting the pawl back without the spring. I then worked the lever the full length that it would move by giving it a full stroke, and once in awhile the pawl would catch, but it did not seem to catch much, because on raising the bar a little bit it would free itself again. The bottom of the jack was then wedged up at the corner so that it would not wabble or weave around, and the lever would work up and down, and the pawl would not catch at all. I then went in the factory to where there was a pile of about thirty or forty jacks, and took out one that had never been used at all, and we took the spring out of that and tried it and it would not work. We then leaned it over and put wedges under the bottom of the jack on the same side as the pawl, leaning it over until the pawl would slip into its place readily; then we commenced withdrawing the wedges until we found just the point where it would slip in and engage the teeth.

6 Q. Please designate, as near as you can, the degree or angle.

A. I made a little sketch which will illustrate it (witness producing sketch). To make this sketch I took a pocket level, and, placing one arm of this rule (witness exhibiting rule) level and the other arm against the jack, *and* found the point at which the pawl would slip in and catch.

7 Q. The rule you used consisted of two arms hinged together, and, having placed one arm of the rule in a horizontal position, the other arm in a vertical position, the vertical arm was then pushed forward to the angle coincident with the jack's position?

A. Yes, sir.

69 8 Q. And you used this as a means of determining the angle at which the pawl would slip in and catch?

A. Yes, sir; until it would come so that it would slip in and catch. I then took my rule and laid it upon a piece of paper in that way (illustrating), and took a pair of protractors and took the angle of that.

9 Q. Have you that paper with you?

A. Yes, sir.

10 Q. Produce it, please.

A. I will (witness producing sketch). I took the pawl blocks out of several jacks and measured the seat to get the angle of the seat. Some of them I found a little less than nine degrees and some a little over eleven degrees. The seat is cored in the casting, and I suppose in cleaning out the core it makes a little variation in the angle, and that is the way that this occurs. I this morning took those angles and averaged them and found the average to be about 10 degrees—that is, the seat of the pawl block in which the pawl sits when the jack is in a perpendicular position. I will designate those angles by the letters on the sketch. The angle of the seat of the pawl block A, B, C is 10 degrees; when the jack is standing upright, and when it is leaned over far enough to cause the pawl to slip in by its own gravity, it must be leaned over 12½ degrees, which, added to the angle of the seat, makes 22½ degrees, the point at which the pawl will slip so as to catch.

Mr. HOSEA: The sketch which the witness has referred to is now offered in evidence. (The same is hereto attached, marked Defendant's Exhibit "McCormack Sketch.")

Mr. WOOD: All the foregoing testimony is objected to. First, because the complainant was not invited to witness the test; second, because the devices in question are not produced.

11 Q. You have testified that in one of those jacks out of the seven with which you experimented the pawl would sometimes catch the lifting bar; about how often would it catch?

A. Well, I did not count the strokes of the lever, but I would suppose once in five or six times.

70 12 Q. From your experience in these matters and from these experiments you have made would you consider the Mosher jack operative for any business purposes without the spring?

A. No, sir; I would not.

13 Q. Would you consider it operative for any business purpose if the angle of the seat was twice as great as it is—that is to say, twenty degrees instead of ten degrees?

A. No, sir; I would not like to trust it; for lifting any heavy weight, I would not trust it.

14 Q. Will you now please take the jack which is in evidence in this suit, and which has heretofore been designated as Exhibit "Mosher Jack No. O," and make in our presence such experiments with it as you deem proper to ascertain whether or not this jack will operate without a spring behind the pawl? You can take your own course in making the experiment, as I have nothing to suggest. I would like to have Mr. Lyon also assist at this experiment with you, as I desire to examine him on the same subject.

(The witness here took the jack specified by counsel and made sundry experiments with the same, and said:)

A. That works about like the jack that I was telling you about, that I used on the Hocking Valley road. Once in a while this pawl

will catch a little, but in reversing the lever bar it will set it free again.

(The witness having concluded his experiments with the jack in question, the examination proceeded:)

15 Q. Will you please describe now in detail what experiments you have made with the jack here present, and at what conclusions you have arrived?

A. I took the jack and set it on the stone window-sill, took the spring from behind the pawl, and then worked the lever as I would in use in lifting a weight; the jack was placed as nearly perpendicular as I could by eye; on working the lever sometimes the pawl catches slightly, but I do not think that the pawl slides into its place. It tips like that (indicating), so that the top teeth
71 catches; by putting your finger on the top piece and raising the lower block you can see that it tips over, and if you work the lever it falls out; if it were slipped in bodily it would not throw the pawl out.

16 Q. These experiments you have made in the presence of all parties here, have you not?

A. Yes, sir.

17 Q. And at my request?

A. Yes, sir.

18 Q. What was your object in placing the jack on the stone window-sill?

A. In order to get a solid place where the jack would not rock around, the same as though you put it under a car or any other heavy weight to raise it up.

19 Q. Did you do anything further to get a steady resting place?

A. I put some little wedges under the edge of the bottom, at the foot?

20 Q. That was simply to prevent any rocking or vibratory motion, was it not?

A. Yes, sir.

21 Q. And having placed it upon a solid foundation you operated it, pressing with one hand upon the rack bar, holding it down, and operating the lever with the other?

A. Yes, sir.

22 Q. About how often did you find that the pawl would catch?

A. Well, once in three or four times, I suppose, a little.

23 Q. Did you tip the jack over to assist the movement of the pawl?

A. Mr. Lyons did. I did not.

24 Q. Why was it necessary to place wedges under the jack to get a solid bearing?

A. The foot or bottom of the jack is not straight on account of the draft of the casting pattern.

25 Q. Do you find the wabbling of the jack assists the movement of the pawl?

A. Well, I think it would; yes, sir.

72 26 Q. Did you examine the base of the pawl in this jack to ascertain whether it was square?

A. Yes, sir.

27 Q. What did you find?

A. It is rounding.

28 Q. Has this anything to do with the movement of the pawl in engaging the rack bar?

A. It allows it to tip and roll round.

29 Q. Is this, in your judgment, what causes this pawl to catch once in three or four times?

A. It is an assistance. materially.

30 Q. Has the inclination of the seat in this case anything to do with the engagement of the pawl?

A. I do not think it has; I do not think it is sufficient.

31 Q. You placed oil upon the jack during the progress of your experiment. Please state what you oiled and the result.

A. I oiled the bearings of the lever simply to make the lever work freely in its bearings; I did not oil the pawl.

32 Q. But this was some time after your had been engaged in your experiment?

A. Yes, sir.

33 Q. Did you find this affected the operation of the jack in any way?

A. The jack worked smoother and easier.

34 Q. Did it in any way affect the operation of the pawl?

A. No, sir.

Cross-examination by Mr. WOOD:

35 Q. I noticed in your experiments you held your hand at the end of the lever, your fingers intervening between the end of the lever and the window-sill. About how near to the stone sill did the end of the lever come in making those experiments?

A. Well, I could not say; I did not notice that particularly. I shoved the lever down until it went down far enough to clear the teeth of the pawl.

36 Q. Well, the lever came within about an inch of the sill, did it not?

73 A. Well, I did not notice and I could not say.

37 Q. Well, about there?

A. Well, about there, I suppose.

38 Q. (Counsel arranging jack.) I now have turned the lever around so that it will take a full stroke, the end of the lever projecting out over the sill, so that it comes down even or below the base, the spring not being in. I will work the lever; will you see whether the lever now does not raise the rack bar?

Mr. HOSEA: I object to the question.

A. It raised the rock bar then, but you use that jack under a car weighing thirty-five tons in that condition; nobody would that has any regard for his fingers.

Redirect examination:

39 Q. Will you please examine the jack in the position in which it is left by Mr. Wood and make such answer to his question as may seem proper, after such further experiment as you deem proper.

A. Now, in the first place, you cannot use a jack in that position; the way I have experimented is the way it is used in lifting up anything. I did not go to work and place it in any special position or anything of that. Now, I will not put my fingers under the end of the bar, but will push it clear down (witness working lever); now it has caught; now, I will just put my finger on the top and pull this lower block out, and you can see now how it is (examined by counsel).

40 Q. How much has it caught, as near as you can tell?

A. I think it has caught the sixteenth of an inch, as near as I can see. If you will notice, the pawl does not slide in, it tips over; the action of that pawl in this case is just the same as a single-tooth pawl pivoted at the bottom and tipping over. Now, I will tip the jack over, and, having done so, it has slid in below the same as the spring slides it in. You see that I have tipped it over the same as I did before; you see when the jack sits upright that the pawl does not slip in, but tips over at the top and catches, and the pawl is rounding on its bottom and rocks in its seat.

74 41 Q. This demonstrates conclusively, does it not, that the pawl only catches by tipping over and not by sliding on its seat?

Mr. Wood: I object to the question as leading.

A. The pawl does not slide on its seat; it simply tips over on account of the bottom of it being so round. (Witness working lever of jack.) You see it does not slide now at all. There is no sliding there—no sliding.

42 Q. Will you now please manipulate the lever as Mr. Wood did, throwing it down each time hard enough to strike the jack, causing a vibration, and say whether the pawl catches?

A. (Witness working lever.) It has caught; I suppose you can jar it into position. You can see that it has caught there about one-sixteenth of an inch, I should think.

43 Q. Will the pawl catch at all when the jack is manipulated so that it does not vibrate, as, for instance, it would do under a heavy load?

A. Well, it did not slide in. The pawl tips over when it is vibrated. It does not slide bodily in as a spring slides it in.

Recross-examination:

44 Q. What is that hole in the end of the lever for?

A. To put a wood bar in to increase the length of the lever.

45 Q. About how long is the wood bar they usually employ in jacks of that kind?

A. Well, I should think about three feet; I have never used a jack of that size. Mr. Lyons could tell better than I can.

46 Q. At any rate, they use some length of wood lever?

A. Yes, sir.

47 Q. And when they use a lever of that kind they set the jack upon a block, do they not?

A. Sometimes they do and sometimes they do not.

48 Q. Well, that little jack would have to be set upon a block of wood with a three-foot lever?

A. Well, I think not. I never used such a jack as that, but I know that they set them on the ground.

75 49 Q. That is, where there is a lever of that length the jack is put on the ground?

A. Yes, sir; a jack like that is used to put under a car to elevate it, and you could not get much of a block under the jack and get it under a car box. I think it is just about the distance from the ground to the car box that the length of this jack is. I do not know what they are made for, but I suppose that is it.

50 Q. What is the seat inclined for?

A. Well, all I can tell you about that is what Mr. Mosher has told me, to prevent the pawl block from flying back and freeing the teeth when a load is on it. For my part, I do not see any real necessity for it.

Redirect examination:

51 Q. Whether there be a block under the jack or not, is not the effect of a heavy load upon it to keep the body of the jack perfectly still?

A. Yes, sir; that is the effect of a load.

52 Q. And that prevents any vibration due to the movement of the lever?

A. Yes, sir; of course that would keep it steady. Now, I have used those jacks turned right up that way, bottom upward, and in that position they would be inoperative without a spring. For instance, once in awhile on a bridge I want to use the block and there is not room enough for the jack to be worked by setting it in its upright position; therefore we turn it over and fasten a rope to the lever and extend it to the top of the bridge and work the lever by the men handling the rope at the top of the bridge.

Recross-examination:

53 Q. The seat has no effect in that case?

A. Well, if it has any effect to keep the pawl in place it rests in its seat, of course.

54 Q. In that case the pawl rests upon the top end?

A. It would when there was no weight upon it.

76 Redirect examination:

55 Q. Do you say that the Mosher jack is adapted to be used upside down?

A. Yes, sir.

56 Q. Could you use the Joyce jack exhibited here in that way?

A. No, sir; not without you put your finger on the pawl to keep it in place.

JAMES M. McCORMACK.

L. B. LYON, of lawful age, being by me first duly cautioned and sworn, deposes as follows:

Examined by Mr. HOSEA:

1 Q. You have testified before in this case, have you not?

A. Yes, sir.

2 Q. You are the foreman of the car-repair shops of the Marietta & Cincinnati Railroad Company?

A. Yes, sir; at Chillicothe.

3 Q. You have been working at that business since 1865, and have used jacks of various kinds during that period?

A. Yes, sir.

4 Q. Have you made any experiments to ascertain whether the Mosher jack is operative without the spring?

A. I have.

5 Q. Please state what those experiments were and the results.

Mr. WOOD: I object to this testimony the same as to that of the previous witness.

A. I took the pawl from behind the spring and worked the lever, and found that the pawl would not generally fall to its place, both empty and loaded—that is, in endeavoring to raise a weight with a jack.

6 Q. You used Mosher jacks in ordinary use on your road, did you, for this experiment?

Mr. WOOD: I object to it the same as before.

A. Yes, sir.

77 7 Q. And made no further change in them than to remove the spring?

A. That was all.

8 Q. Your expression is that the pawl would not generally fall to its place; what do you mean by that expression?

A. I mean that it was but seldom that it would catch at all; generally it would not slip into place so that it would hold the bar of its own weight.

9 Q. Did you try the jacks in a vertical position or did you incline them?

A. I tried them in a vertical position, as nearly as they would set in ordinary use.

10 Q. Did the pawls catch when you used the jacks with a load?

A. But seldom.

11 Q. From your previous knowledge of the use of these jacks and from the experiment you have made, what is your judgment as to the practicability of the jack without a spring?

Mr. WOOD: I object to the question as leading and for the reason that the same is not within the leave granted the defendants upon

their motion; second, because the condition of the test and the presence of the complainant was not made known or not within the knowledge of counsel.

A. My opinion is that they are not reliable without the spring.

12 Q. Would you consider them practicable for any business purpose without a spring?

A. No, sir; not without the spring.

13 Q. Have you made any experiment here at this city in the presence of Mr. Wood, counsel for the complainant, with a jack known in this case as "Exhibit Mosher Jack No. O?" And, if so, please state the details of such experiment and your conclusion in regard to the practical working of said jack without a spring.

A. Yes, sir; I set the jack as nearly vertical as I could at a guess by the eye, having taken the spring from behind the pawl block
78 and worked the lever, but I find that the pawl will slip and take a very slight hold on some of the teeth sometimes, but at other times it will not take hold. I have taken the rack bar out of the jack and endeavored to find the angle of friction in this particular case between the two pieces of cast iron—that is, the seat of the pawl and the bottom of the pawl, and I find the seat at an angle of about ten degrees. I have oiled the bottom of the seat that holds the pawl in its place, the seat on which the pawl is set, and the pawl will not slip forward after being oiled. On leaning the jack forward to an extent of nearly ten degrees, at a guess, making the angle of friction in this case about eighteen degrees, the pawl will slip forward bodily. By angle of friction I mean that point at which the force of gravity overcomes the friction between those two pieces of metal.

14 Q. You find that in the case of this particular jack, the pawl and the seat being perfectly clean and well oiled, the angle is about eighteen degrees at which the pawl will move forward and engage the rack-bar, as near as you can estimate it?

A. Yes, sir.

15 Q. And this you ascertain by carefully lifting the base of the jack at one side until it is inclined from a vertical position so as to make the angle of the seat of the pawl about eighteen degrees with the horizon; is that correct?

A. Yes, sir; that is correct.

16 Q. Do you find that the vibratory movement of the jack has anything to do with the engagement of the pawl?

A. Yes, sir; a little jar will start the pawl sliding on its base or it will incline at the top and fall over.

17 Q. Well, which of those is the fact in this case? So far as you can judge, does the pawl slide on its base or does it simply tip over and engage—that is, when the jack is sitting level?

A. I find it to be a falling forward of the top of the pawl.

18 Q. Have you made any experiment to ascertain the angles at which cast iron will slip on cast iron—that is to say, the pawl of a jack on its seat by gravity alone?

Mr. Wood: I object to the question, as the condition of the test is not known to counsel for the complainant.

79 A. I have, with two pieces of cast iron.

19 Q. Please state what experiment you made to ascertain those facts, and what is the result you arrived at.

Mr. WOOD: I object to the question the same as before.

A. I took two pieces of cast iron that had not been dressed or planed and smoothed them as well as I could with a piece of sand-paper in a short time. I oiled the surfaces and inclined the one piece to about an angle of fourteen degrees; at about that angle I found that a small piece of casting, well lubricated, will barely move after being started, but will have to be inclined to nearly twenty degrees before the block will start or a simple piece of casting start to slide on a plane. I think this is near a fair test in this particular case as between two pieces of casting the same as the Mosher jack.

20 Q. From the experiments you have made here in our presence will you state whether or not the Mosher Jack No. O, which is in evi. dence, is operative without a spring?

A. I would not say that it was not reliably operative without a spring or practically operative.

21 Q. Is it operative at all, in any business sense, without a spring?

A. I would say not.

Cross-examined by Mr. WOOD:

22 Q. You tested this "Mosher Jack No. O" in the position placed by Mr. McCormack?

A. Yes, sir.

23 Q. And tested it in the same position that he did?

A. Yes, sir.

By Mr. HOSEA:

24 Q. And concur in his testimony in regard to it?

Mr. WOOD: I object to the question—the answers of Mr. McCormack?

A. Yes, sir.

L. B. LYON.

(Proper certificate.)

80 Deposition of John K. Hallock, taken this 15th day of March, 1882, at the office of said Hallock, in the city of Erie, Pa., beginning at the hour of 10 o'clock a. m., in pursuance of the hereto-annexed notice.

Present: W. G. Rainey, Esq., representing the defendants; no appearance on behalf of the complainant.

JOHN K. HALLOCK, being duly sworn on behalf of the defendants, deposes as follows:

Examined by W. G. RAINEY:

1 Question. State your name, age, residence, and occupation.

Answer. John K. Hallock; I am about 37 years of age; I reside in the city of Erie; occupation, patent attorney.

The further taking of testimony is now adjourned until the hour of 2 p. m., in order to give the complainant's attorney an opportunity to be present.

Mr. E. E. Wood appearing on behalf of the complainant, at 2 o'clock p. m. examination is resumed.

2 Q. Please tell us what experience you have had to qualify you in the construction of patents.

A. I have been a solicitor of patents and patent attorney for over twelve years. During this time I have had considerable experience in interpreting patents in order to determine the scope of the same and the bearing that they have upon other mechanism of a like kind. In fact, it has been my constant occupation during the past twelve years to draw the specifications and claims of patents and prepare cases upon the same for litigation in the courts.

3 Q. I now hand you letters patent 154,989, September 15, 1874, and will ask you to state whether you have examined and understand the same?

A. I have examined and believe I understand the mechanism shown and what the inventor has declared to be his invention.

4 Q. I now hand you a model marked "Complainant's Exhibit Lifting Jack," said to be a representation of the device
81 made by the defendant. Please state whether you understand its construction and mode of operation.

A. I have examined the model you refer to and think I understand its workings and its construction.

5 Q. Above question repeated with reference to the device known as Leffel jack.

A. I have examined the Leffel jack and think I understand its workings and construction.

5½ Q. I now hand you the following letters patent, referred to in the defendant's answer and offered in evidence on part of the defendant:

No. 56111, July 3, 1866, to L. Smith, lifting jack.
No. 106,417, August 16, 1870, to W. M. Smith, cotton press.
No. 115,126, May 23, 1871, W. M. Smith, cotton and hay press.

Also drawings in the following patents:

No. 11303, July 11, 1854, F. B. Smith, lifting jack.
No. 36144, August 12, 1862, D. Fasig, lifting jack.
No. 51469, December 12, 1865, J. B. Masser, sash holder.

Please state whether you have examined and understand the devices shown in these several patents.

By consent, adjourned until to-morrow morning at 9 o'clock.

MARCH 16, 1882.

Examination resumed pursuant to adjournment:

A. I have examined the patents referred to and think I understand the construction of the devices there shown.

6 Q. Assuming the Lefell jack to have been in existence prior to the Joyce invention, please tell us what is the scope of the Joyce invention and the first claim of his patent under the state of the art as illustrated by these patents and drawings and this Leffel jack.

A. The state of the art shown by these several devices makes it clear that in lifting jacks and similar implements that pawls
82 operating upon the ratcheted working bar were very common, both those operated or held against the rachet by gravity or by a spring, and that such pawls having many teeth were also common; and, also, that where the pawls were operated by gravity it was very common to mount them so as to slide upon an inclined way. The Joyce patent says in the body of the specification that the invention relates to the pawl, and its objects are, first, to substitute the weight of the pawl, sliding in inclined slots, grooves, or guides, for the elastic spring usually employed to press it against the teeth of the ratchet bar; and, second, to obtain greater strength by dividing the load among several teeth of the pawl and ratchet bar instead of supporting it all on one tooth; and the first claim of that patent is for such a construction, being as follows:

"1. A pawl for lever jack, with two or more teeth, and adapted to move in inclined slots, grooves, or guides formed in the frames substantially as described."

In the patent to F. B. Smith, No. 11303, dated July 11, 1854, I find a lifting jack having a gravity pawl, which does not, however, work on an inclined way, nor does it have more than one tooth, but it shows that it was very common to use gravity pawls in lifting jacks.

In the patents to W. M. Smith, Nos. 106,417 and 115,126, dated, respectively, August 16, 1870, and May 23, 1871, I find a cotton press having a lever jack for operating the press, having a pawl with two or more teeth, and adapted to move in inclined slots or ways, grooves or guides, formed in the frame which supports said pawls, being a device almost precisely the same as that shown in the Joyce patent, so far as the elements claimed in the first claim is concerned. The office of the pawl in the Joyce patent is not to move the ratchet bar, but to hold it up and prevent its sliding back; and I find in J. B. Masser, No. 51469, dated December 12, 1865, a pawl which operates by gravity, has many teeth, is mounted in inclined grooves in the supporting frame, and which performs the office or function of holding up a window sash and preventing it going down; I therefore conclude that there was no inven-
83 tion in providing a lever jack with a pawl having two or more teeth and adapted to move in inclined slots, grooves, or guides. If, however, it should be considered that there was invention in producing the construction shown in the Joyce patent, then I should say that its scope was circumscribed or limited so as to include

nothing but what the language of the claim, taken in the most literal sense, would imply—that is to say, I should consider that it was so circumscribed in its scope that it would not include a similar construction having a pawl with but one tooth, nor would it include a pawl having many teeth which was operated by a spring, nor would it include a pawl having many teeth mounted in grooves or ways and operated by a spring.

The inventor has specially disclaimed pawls which depend upon a spring for their action, and therefore I conclude he only attempted to claim such pawls as are mounted in inclined ways, or in grooves or in slots, and are operated only by gravity. In the patents and devices referred to in your question I find it is old to use a pawl which is operated upon by a spring, as the inventor admits it to be. This is shown in the device marked Exhibit Leffel Jack. It is also shown in the patent to D. Fasig, No 36144, dated August 12, 1862, and also in patent to L. Smith, No. 56111, dated July 3, 1866. In both of these last-named cases the pawls are also mounted in grooves or slots or recesses; but I do not understand that the inventor, Joyce, had any idea of giving his patent sufficient scope to include a pawl which worked in a recess or a groove which was not inclined sufficiently to allow the pawl to operate by gravity only; nor do I think the language of the claim could be so construed, in view of the context, regardless of the state of the art, as shown by the patents and devices I have referred to.

7 Q. Please state whether the use of pawls, as shown in the W. M. Smith patents and the Masser patents, are used for anologous purposes as that shown in the Joyce.

A. The pawls in the W. M. Smith patents were used for precisely the same purpose in an analogous device, and in the Masser patent the pawl is used for an analogous purpose.

84 8 Q. Please refer to the model of the defendant's machine and state whether you find therein the elements of the first claim of the Joyce patent, under the interpretation you have above given as to its scope, and give your reasons for any opinion you may express.

A. I do not find therein the elements of the first claim of the Joyce patent. I find a pawl having many teeth mounted in a recess in the frame, but it is operated by a spring and not by gravity; it has a handle which extends outside of the recess by passing through a mortice; this handle is for the purpose of drawing the pawl back so as to disengage it; the pawl is not mounted in inclined slots, grooves, or guides in the frame; it is guided by the sides of the recess, which are plain; it is seated upon the bottom of the recess, which is slightly inclined, but not sufficiently to allow the pawl to act by gravity, even if it was not provided with a spring to actuate it. I therefore conclude, as I stated above, that I do not find in this construction the elements of the first claim of the Joyce patent. I will further add that I do not find in this device any elements which are the equivalents of the elements named in said first claim in a legal sense.

Cross-examination by Mr. E. E. WOOD, for respondent:

9 Q. What do you mean by the phrase "equivalent in a legal sense?"

A. I mean such equivalents as would be considered by the court under the doctrine of the substitution of equivalents.

JOHN K. HALLOCK.

(Proper certificate.)

Depositions of sundry witnesses taken before me, Matthew J. Day, a notary public in and for the county of Hamilton, in the State of Ohio, at the office of Messrs. Rainey & Hosea, Cincinnati, Ohio—by consent of the parties all formalities are waived—to be read in evidence on behalf of the defendants in an action pending in the United States circuit court, southern district of Ohio, eastern
85 division, in which J. O. Joyce is complainant and the Chillicothe Foundry & Machine Works Co. and F. M. De Weese are defendants.

Present: On behalf of the complainant, Mr. E. E. Wood, and on behalf of the defendants, Mr. W. G. Rainey.

It is further agreed that the testimony of the witnesses may be taken down in short-hand by the notary public, Matthew J. Day, and a certificate of said notary attached as to the correctness of the transcription. Said notary is authorized to append the signature of the witnesses to their respective depositions.

L. B. LYONS, of lawful age, being by me first duly sworn, testifies as follows:

Interrogatories by W. G. RAINEY:

1 Question. Please give your name, age, residence, and occupation.

Answer. L. B. Lyons; age, 45 years; residence, Chillicothe, Ross county, Ohio; foreman of car repairs for the M. & C. railroad.

2 Q. How long have you been so occupied?

A. Since January, 1875.

3 Q. What was your business before you took your present situation?

A. Immediately before that I was working at the car repairs at the Zaleski shops, in Vinton county, for the same company. I commenced working there in 1865, and continued there until 1875—with the exception of about two years between 1872 and 1874—at that shop.

4 Q. State whether you are generally familiar with the machinery and implements used in and about and upon railroads.

A. I am in the car department.

5 Q. Are you familiar with jacks used for lifting locomotives, cars, and other purposes?

A. Yes, sir.

6 Q. What kind and description of jacks are you most familiar with?

86 A. We first had the screw jack, and then the Leffel jack; those were the jacks in use when I commenced working for the railway company.

7 Q. When did you first know of the use of the Leffel jack?

A. About 1866.

8 Q. Before that you used the screw jack?

A. I do not think we had a Leffel jack in the shop when I first commenced; my memory is that we commenced using it several months afterwards, and in 1866. It was screw jacks prior to that time. I know that we had screw jacks in the shop when I first commenced.

9 Q. Is there a Leffel jack now before you in this room? If so, please designate it.

A. Yes, sir; this jack (witness indicating) I identify as the principle of the Leffel jack. I think it was not manufactured by Leffel himself, and the stand was manufactured by the M. & C. Railroad Co. to replace one worn out.

(The jack referred to is offered in evidence by defendants' counsel, Mr. Rainey, and asked to be marked as "Exhibit Leffel Jack.")

(It is admitted by counsel for the complainant, Mr. Wood, that the exhibit is what is known as the "Leffel jack" and the same jack referred to in the testimony for the complainant.)

10 Q. From the time you first speak of knowing the Leffel jack in 1866, please state whether or not it was used constantly.

A. The Leffel jacks are used constantly in the shops in which I was engaged. That is one of the jacks we use (witness indicating "Exhibit Leffel Jack").

11 Q. Like this "Exhibit Leffel Jack?"

A. Yes, sir; they were preferred to the screw jack in consequence of the speed.

12 Q. It was a superior jack to the screw jack?

A. Yes, sir; in working it was more speedy.

13 Q. Are you familiar with the jack known as the "Joyce
87 jack?" And if so, state whether one is present now before you.

A. I identify one jack present as the "Joyce jack" (witness designating the jack).

(It is admitted by complainant's counsel (Mr. Wood) that the jack referred to by the witness is one of the "Joyce jacks" manufactured under the patent sued upon in this case, and said jack is offered in evidence by defendants' counsel (Mr. Rainey) and marked "Exhibit Joyce Jack.")

14 C. Will you please state the difference between the "Leffel" and the "Joyce jacks?"

A. What I would consider the principal difference is in the hold of the pawl. The pawl of the "Leffel jack" sits in a seat and is driven through the bar by a spring. In the "Joyce jack" the pawl sets on an inclined plane and falls to the bar by the weight of gravity. The pawl in the Joyce jack has several teeth, while the paw on the Leffel jack has but one tooth.

15 Q. Are the two jacks similar in other respects?

A. There is a difference in the attachment of the lever. The lever of the Leffel jack hangs in hangers, while the lever of the Joyce jack is attached to the frame of the jack directly by pins or lugs in the lever. The pins pass through the lever, I believe, in the way it is attached.

16 Q. But for the purposes for which they are both designed they are practically the same, are they not? I am speaking of the lever.

A. Yes, sir; of the lever.

17 Q. Are you familiar with a jack known as the Mosher jack, as made by the defendant, The Chillicothe Foundry and Machine Works Co.?

A. Yes, sir.

18 Q. Is there such a jack present?

A. Yes, sir; two of them; that one and this one (witness designating jacks as being present); a small one and a large one; one "No. O" and the other "No. 4."

(Said jacks are now offered in evidence by defendants' counsel (Mr. Rainey), and are marked "Exhibits Mosher Jack No. O and No. 4," respectively.)

88 (It is agreed by the respective counsel that the said jacks are correct jacks of those sizes as made by the defendant, The Chillicothe Foundry and Machine Works Co.)

19 Q. Do you know when "Exhibit Mosher Jack No. 4" was made and how long it has been in use?

A. Well, I know nearly; it was made soon after the patent was issued, which was in 1875; I think it came on the M. & C. road in 1876; I have had it in the car-shop yards in use in repairs since about 1878, I think.

20 Q. Has it been constantly used since 1878?

A. It has been subject to use daily since 1878, among several other jacks. I would say, however, that the jack was sent to Cincinnati probably two months ago; since then I have not seen it until now.

21 Q. Will you state what similarity, if any, or dissimilarity there is between the Joyce jack and these Mosher jacks?

A. Well, the first difference I would notice, which I consider the most important, is in the lifting arrangement. The lifting arrangement of the Joyce jack is similar to that of the Leffel, while the Mosher jack has a block attached to the lever that engages the teeth of the bar by which the bar is raised; this block has several teeth that engages with the bar and is pivoted to the lever by a pin. The hold of the pawl is different from the pawl in the Joyce jack, principally in that it depends upon a spring to force it into connection with the teeth of the bar instead of on an inclined plane; the pawl has also several teeth.

22 Q. Please state how the pawl of the Joyce jack is made to engage with the rack or the teeth of the rack.

A. The pins fastened to the pawl rest in inclined slots in the

frame, the incline being sufficient for the weight of gravity to force the pawl down in connection with the teeth of the rack.

23 Q. Please state whether in the Mosher jack there is any such arrangement by which the pawl is made to engage with the teeth of the rack.

A. No arrangement, independent of the spring.

89 24 Q. How is the pawl in the Mosher jack made to engage with the teeth of the rack?

A. Principally by a spring.

25 Q. Has it any slots in the frame similar to this Joyce jack?

A. I would say no.

26 Q. Have you observed in the Mosher jack the incline at the foot of the pawl?

A. Yes, sir.

27 Q. Please tell us what function it performs in causing the pawl to take hold of the teeth of the rack bar, if any.

A. I would say that it was an assistant to the spring and it would advance to its place a little better sitting on an inclined plane than if square.

28 Q. Would it cause the pawl to feed with the teeth of the rack bar were it not for the office of the spring?

A. I think not.

29 Q. Have you observed in the Mosher jack a projection to which is attached a ring on the outside of the casing?

A. Yes, sir.

30 Q. What is the office and function of that projection?

A. It is by which to handle the pawl and disengage it from the bar in lowering the jack.

31 Q. Does it assist in any manner in causing the pawl to be guided toward the rack bar?

A. Not necessarily.

32 Q. Suppose the inclined slots through which the pins work and upon which the pawl is hung in the Joyce jack were made on the same angle upon which the pawl rests in the Mosher jack, would it then work?

A. I do not think it would work.

33 Q. Why not?

A. Because the incline is not great enough.

34 Q. It would have to have a spring to force it there?

A. Yes, sir.

35 Q. You spoke of the pawl of the Leffel jack resting upon an incline in the case?

90 A. I spoke of it sitting in a seat.

36 Q. That is also an incline?

A. Well, I am hardly prepared to say that the seat is on an incline.

37 Q. Will you be kind enough to look at the Leffel jack and say how that is?

A. (Witness examining exhibit.) There is an incline from the outside of the frame to the center of the seat, and also from the inside or part near the bar to the center of the seat; there is an incline each way.

38 Q. What is the object of those inclines?

A. To form the box in which the pawl is to sit, I think.

39 Q. Does it assist in holding the pawl in position towards the bar?

A. It holds the bottom in position; the top of the pawl is held by a spring.

40 Q. Now, does not the incline in the Leffel jack perform substantially the same function as that in the Mosher, in so far as it assists in holding the pawl up against the teeth of the bar?

A. It assists in holding it from slipping out at the bottom.

Cross-examination by E. E. WOOD:

41 Q. The double incline which the bottom of the pawl in the Leffel jack rests in forms a seat for the pawl to pivot in equivalent to a pivot movement in contradistinction to a lateral movement?

—. ——.

42 Q. Have you ever examined a copy of the Mosher patent?

A. Yes, sir.

43 Q. No. 172,471; look at that too (showing witness paper) When did you examine that patent?

(Counsel for defendants object because not proper cross-examination, the Mosher patent not having been referred to or offered in evidence, and the witness not having been called as an expert on patents.)

91 A. When I answered the former question this patent had not been handed to me.

44 Q. Well, of course, if you had not examined it.

A. Well, this I had not paid much attention to.

45 Q. What is the date of that patent now handed you?

A. January 18, 1876.

46 Q. Will you look at the Mosher jack No. 4 and say if you find that date of the patent marked upon it?

A. (Witness examining "Exhibit Mosher Jack No. 4.") The date of the patent marked upon No. 4 is October 11, 1875, and January 18, 1876. I had noticed this patent of January, 1876, and read it soon after it was brought out, but had forgotten the peculiarity of that as compared with the first patent.

47 Q. The patent of October 11, 1876, is the first patent you refer to?

A. That is the first patent; the first patent I had reference to when I answered your question No. 42. "Yes, sir."

48 Q. That patent has but a single-tooth pivoted pawl?

A. That patent has; this patent is different from the "exhibited jack."

49 Q. Which have you used, the single-tooth or the many-toothed pawl?

A. The several-toothed pawl.

L. B. LYONS.

S. E. MOSHER, of lawful age, being by me first duly sworn, testified as follows:

Interrogatories by My. W. G. RAINEY:

1 Q. State your name, age, residence, and occupation.

A. S. E. Mosher; forty-seven years of age; Chillicothe, Ohio; I am acting as supervisor of engines and cars on the Marietta road.

2 Q. How long have you been so engaged?

A. I think over eleven years.

3 Q. Are you familiar with what is known as lever jacks?

A. I am.

92 4 Q. You have obtained some patents on jacks yourself, have you not?

A. I have; yes, sir.

5 Q. State whether the Exhibits "Mosher Jack No. O" and "No. 4" are made under your patents.

A. They are.

6 Q. Are you familiar with the jack known as the Joyce jack?

A. Well, not practically; I have never used it but a little; used it just enough to try them, that is all.

7 Q. You know there is a jack known as the Joyce jack?

A. Yes, sir.

8 Q. I will ask you to examine the model introduced in testimony by the complainant and marked "Complainant's Exhibit Mosher Jack," purporting to be an exhibit of the Mosher jack, and state whether it is a correct model and, if it is not, point out where it is incorrect.

(Complainant's counsel, Mr. Wood, objects to the question as incompetent.)

A. I think it is quite a fair representation of it, although I think there are some things which are exaggerated a little.

9 Q. Please tell us what.

A. The incline under the handle here, I think, is a little too much, by the appearance of it; I am quite certain it has more incline than the ones Mr. De Wesse is manufacturing; and I think the base, or what we call the seat, is a little more on the incline; he has omitted to put the ring in here (indicating). I do not know that it is necessary to go in the evidence, but that would be worthless to use without a handle to get a hold of.

10 Q. Without a ring?

A. Yes, sir; without something to get hold to handle it with.

11 Q. What is the object of that handle of which you speak?

A. It is to release the pawl—pull the pawl back from the teeth of the rack—disengage the teeth of the rack; by having a ring in there we take hold and pull it back when we want to let the weight down.

93 12 Q. This model has no such ring?

A. The model has not.

13 Q. That handle you speak of, when perfected by the ring, is

used for the same purpose that the hoop is on the pawl of the Joyce jack, is it not?

A. I think so; yes, sir.

14 Q. To lift the pawl out of engagement with the teeth of the rack?

A. Yes, sir.

15 Q. Does it perform any other function in the Mosher jack?

A. It is not intended to.

16 Q. What is the weight of the pawl in Exhibit "No. O?"

A. I do not know.

17 Q. What function does the incline at the bottom of the pawl of the Mosher jack perform?

A. The incline was intended by me, when experimenting upon the jack, to prevent it slipping back from the teeth.

18 Q. What function does it perform in the jack as made?

A. It prevents the teeth from disengaging or the pawl slipping back.

19 Q. Does it perform the function of enabling the pawl to engage with the teeth by force of gravity?

(Complainant's counsel, Mr. Wood, objects to the question as incompetent.)

A. Well, the slight incline might have a little effect upon it, causing it to move in a little easier.

20 Q. State whether the same result would not be accomplished as made or used by strengthening the spring?

(Complainant's counsel, Mr. Wood, objects to the question as incompetent,)

A. The pawl would be moved in very easily, were there no incline in the seat, by the use of a spring.

21 Q. Can you answer my question?

(By request of defendants' counsel question No. 20 is read to the witness.)

(Complainant's counsel, Mr. Wood, objects to the question as leading.)

94 A. I have told you that the pawl would engage in the teeth without any incline, and that with an incline in the seat it might move a little easier, but whether the pawl would remain there as strong without the incline as it would with, I do not think it would.

22 Q. Suppose that you make a strong spring, would it not then hold sufficiently well for practical purposes?

(Complainant's counsel, Mr. Wood, objects to the question as leading and incompetent.)

A. If the spring was made strong enough it would hold, no doubt.

23 Q. How long, to your own knowledge, has "Exhibit Mosher Jack No. 4" been in use?

A. It was put in use, to my certain knowledge, October 7th, 1876.

24 Q. Please state whether you know that it has been used from that time to this, and where.

A. It has been used by the Marietta Railroad Company since that time, a part of the time in the rigging car for the purpose of wrecking, and a part of the time in the yard of the shops at Chillicothe, and a part of the time in Cincinnati; only perhaps two months here.

25 Q. State what difference there is between the Joyce jack and the Mosher jack.

A. The principal difference is in the lever being made with rack teeth in the Joyce jack, while the Mosher jack has a block with the point of the teeth to engage in the rack bar, which enables the load to be lifted without wearing the teeth. The pawl on the Joyce jack is on an angle of about forty-five degrees, which causes the load to drop down after the teeth of the pawl engage the rack; while the pawl is engaging the rack the load must be lifted high enough to have them engage, and then the load must be allowed to fall back something like one-fourth or one-third of the lift to engage, and that portion of the lift is lost at each stroke of the lever.

26 Q. Please state how the pawl in the Joyce jack is made to engage with the teeth of the rack or the bar.

95 A. By being suspended on pins in angling slots, guide, or frame.

27 Q. How is the pawl of the Mosher jack made to engage with the teeth of the bar?

A. By raising on the seat and being pushed to place by the spring.

28 Q. Please state whether it has in it any inclined slots in the frame through which pins work.

A. It has not.

29 Q. Then, in this respect, state whether there is not more difference between the Joyce and Mosher jacks than there is in the levers.

(Complainant's counsel, Mr. Wood, objects to the question as leading and incompetent.)

A. The pawls work more simple on the Leffel and the Mosher jack than they do in the Joyce and the Mosher.

30 Q. I am not referring to the Leffel jack; I am asking you to point out the poins of similarity or dissimilarity between the Mosher and Joyce jacks.

A. Then I take it all back; I misunderstood you; I understood you — the Leffel.

31 Q. Now, will you please answer my question, whether or not there is more difference between the pawl and its arrangement in the Joyce and Mosher jacks than in the levers of the two jacks?

(Complainant's counsel, Mr. Wood, objects to the question as leading.)

A. I would like to have the question again; I am a little hard of hearing.

32 Q. It seems you do not understand, and I will explain. You have heretofore stated that the principal difference between the Joyce and the Mosher jacks was in the lever. Now, then, I ask you if there is any more difference between the pawls of the two jacks than in the levers of the two jacks.

(Complainant's counsel, Mr. Wood, objects to the question as leading and incompetent.)

A. Why, the two levers are nothing near alike.

96 33 Q. Are the two pawls in their arrangement any nearer alike?

(Complainant's counsel, Mr. Wood, objects to the question as leading.)

A. They are not alike.

Cross-examination by Mr. E. E. Wood:

34 Q. When did you first see the Joyce jack of the kind referred to?

A. I think it was at the exposition in Cincinnati, in 1874. I do not remember of seeing it previous to that to notice it.

35 Q. Did you also see and examine a jack which was being constructed by J. Nash & Co. the same year or the following year?

A. I saw it.

36 Q. Are you the patentee of letters patent No. 168,663, dated October 11th, 1865?

A. Yes, sir.

37 Q. And also of patent No. 172,471, dated December 18th, 1875?

A. Yes, sir.

38 Q. And were those the patents you endeavored to refer to when you said that the Mosher jack was made under patents?

A. Yes, sir.

(The complainant's counsel, Mr. Wood, gives notice to the defendants that he objects to the testimony of the witness in the direct examination about these patents unless they are offered in evidence?

39 Q. Who own these patents now?

A. I do.

40 Q. What interest have you in their manufacture and sale?

A. Not any.

41 Q. Who are the interested parties?

A. F. M. De Weese, of Chillicothe, Ohio.

97 42 Q. If you own the patent in what way is De Weese interested?

(Defendants' counsel, Mr. Rainey, objects to the question as irrelevant and not proper cross-examination.)

A. He is manufacturing the jack?

43 Q. By an agreement with you?

A. An understanding; yes, sir.

44 Q. You own the patents and allow him to have the jacks manufactured?

A. Yes, sir.

45 Q. Are those jacks being manufactured at any other place than the Chillicothe Foundry & Machine Works Company?

A. Not that I know of.

46 Q. Were they manufactured prior to their manufacturing at any other place?

(Objected to as irrelevant.)

A. I think they were.

47 Q. Were you a party to that manufacture?

A. I was not.

48 Q. You still own and can control the interest in these patents?

A. I suppose I can.

49 Q. What relation are you to Mr. De Weese, if any?

A. He married my sister.

S. E. MOSHER.

Counsel for defendants, Mr. Rainey, offers in evidence printed copy of the following letters patent, viz:

No. 87708, granted A. C. Rogers March 9th, 1869, for sash holder, marked "Defendants' Exhibit, Rogers' Patent, 1869."

No. 115,126, granted William Smith May 23d, 1871, for a cotton and hay press, marked "Defendants' Exhibit Smith Patent, 1871."

No. 106,417, granted William Smith August 16th, 1870, for cotton press, marked "Defendants' Exhibit Smith Patent, 1870."

98 No. 116,656, granted William C. Williamson, July 4th, 1871, for safety attachments for hoisting cages, marked "Defendants' Exhibit Williamson Patent, 1871."

No. 135,453, granted Gustavus C. Timple February 4th, 1873, for automatic safety hoist, marked "Defendants' Exhibit Timple Patent, 1873."

No. 65015, granted J. M. Sawtell May 21st, 1867, for sash holder, marked "Defendants' Exhibit Sawtell Patent, 1867."

No. 60735, granted Robert Hutton January 1st, 1867, marked "Defendants' Exhibit Hutton Patent, 1867."

No. 65263, granted J. Pardee and R. C. Parvin jointly May 28th, 1867, marked "Defendant's Exhibit Pardee & Parvin Patent, 1867."

No. 32002, granted Benj. Russell April 9th, 1861, marked "Defendants' Exhibit Russell Patent, 1881."

No. 56111, granted L. Smith July 3d, 1866, for lifting jack, marked "Defendants' Exhibit Smith Patent, 1866."

No. 58198, granted M. Andriot September 25th, 1866, marked "Defendants' Exhibit Andriot Patent, 1866."

Counsel for complainant, Mr. Wood, waives the necessity of procuring certified copies and that the printed copies of the above may be used.

JAMES M. MCCORMACK, of lawful age, being by me first duly sworn, testifies as follows:

Interrogatories by Mr. W. G. RAINEY:

1 Q. State your name, age, residence, and occupation.

A. James M. McCormack; I am 49 years old; residence, Greenfield, Ohio; I have charge of iron bridges on the M. & C. railroad.

2 Q. How long have you been so engaged?

A. On the M. & C. railroad since September, 1874.

3 Q. Are you generally familiar with machinery?

A. I have been familiar with some machinery, mill-work, and all such kind of work as that.

4 Q. Are you acquainted with railroad machinery?

99 A. Some.

5 Q. Are you familiar with lever jacks used on railroads?

A. Yes, sir.

6 Q. Have you ever used any?

A. Yes, sir,

7 Q. How long have you been using them?

A. I have been using lever jacks more or less for twenty-five years, I suppose, or more.

8 Q. What kinds have you been using?

A. Well, I have used that kind there mostly. (Witness refers to "Exhibit Leffel Jack.")

9 Q. How long have you used that jack?

A. I have used that jack up to within four or five years.

10 Q. From what time, about?

A. Well, from fifteen to twenty years ago up to that time; we have got one now up in the shop.

11 Q. Do you know the Joyce jack?

A. Yes, sir; I know it.

12 Q. Do you recognize the "Exhibit Joyce Jack" as any one of these jacks present?

A. Yes, sir; I have seen that (witness indicating Exhibit Joyce Jack); I never used one.

13 Q. Did you ever use the Mosher jack?

A. Yes, sir.

14 Q. How long have you used the Mosher jack?

A. Four or five years.

15 Q. Similar to this—Exhibit Mosher Jack No. 4?

A. No, sir; similar to this—"Exhibit Mosher Jack No. O"—but like No. 4.

16 Q. Have you examined this Joyce jack, now before you, and do you understand it?

A. Yes, sir.

17 Q. Have you ever examined the letters patent No. 154,989, granted J. O. Joyce?

A. Yes, sir.

18 Q. Will you please state what you understand to be the invention of Mr. Joyce from reading his specification and claim?

100 A. What I understand to be his invention is the combina-

tion of the pawl block there with a number of teeth in connection with the inclined slots and pins.

19 Q. Now, will you tell us whether or not you find in this "Exhibit Mosher Jack No. 4" or in the "Exhibit Mosher Jack No. O" the invention of Mr. Joyce?

A. No, sir; I do not.

20 Q. Tell us why you make that statement.

A. Well, Mr. Joyce claims his pawl block, operating by means of inclined slots and pins, to gravitate or fall into the teeth of the lifting bar. Mr. Mosher claims a pawl that is thrown into the teeth of the lifting bar by means of a spring—not an inclined slot—using a spring to take the place of the inclined slot.

21 Q. Do you think that is a material difference?

A. I do.

22 Q. Do you find in the Mosher jacks in the frames surrounding the pawl any inclined slots into which the pawl is made to work by gravitation by means of pins?

(Objected to as leading.)

A. No, sir.

23 Q. Have you taken into consideration in this last answer the fact that the pawl in the Mosher jacks have at its base an incline?

(Objected to as leading.)

A. Yes, sir.

24 Q. Will you please tell us what you understand to be the function performed by the incline at the base of the pawl in the Mosher jack?

(Objected to as incompetent.)

A. The function of the incline plane, as I look at it, is for the purpose of a seat to hold the pawl, and the incline is for the purpose of preventing the pawl from slipping back.

25 Q. At what time?

A. When it engages the teeth of the lifting bar.

26 Q. When the load is upon it?

A. Yes, sir.

101 27 Q. Please state whether were it not for the spring upon the pawl, in the Mosher jack, it would engage with the teeth of the bar.

A. Not if the jack was standing upward.

28 Q. Why not?

A. The plate has not an incline sufficient to throw the pawl forward.

29 Q. Suppose there was no incline there at all, how then could it be made to engage with the rack?

A. With a spring.

30 Q. Then, in your opinion, practically the incline in the Mosher jack performs no function in making the pawl engage with the rack?

(Objected to as leading and incompetent.)

A. No, sir.

31 Q. What function does the lug or projection passing through the raised end of the Mosher jack perform?

A. It is simply a handle to get hold of to pull the pawl back out — the teeth of the lifting bar in order to let the lifting bar down.

32 Q. Does it perform any function in engaging with the rack?

A. No, sir.

Cross-examined by E. E. WOOD:

33 Q. What did you say your business was?

A. I have charge of the iron bridges on M. & C. railroad.

34 Q. You think if the Mosher pawl had a little more incline, say from twenty-five to forty degress, it would not need any spring?

A. Well, that would be a great deal more incline, and I do not know whether it would or not; it might have angle enough to throw it into place the same as the Joyce jack, but it has not.

35 Q. It is necessary to use either a weight or a spring to bring it up into place?

A. Yes, sir.

102 36 Q. Mechanics sometimes use one and sometimes another?

A. Yes, sir.

37 Q. It is frequently a question of choice whether you use a spring or weight?

A. Yes, sir.

38 Q. You have known those springs to be equivalents all your life, have you?

A. Yes, sir.

JAMES M. McCORMACK.

(Here follows diagram marked p. 103.)

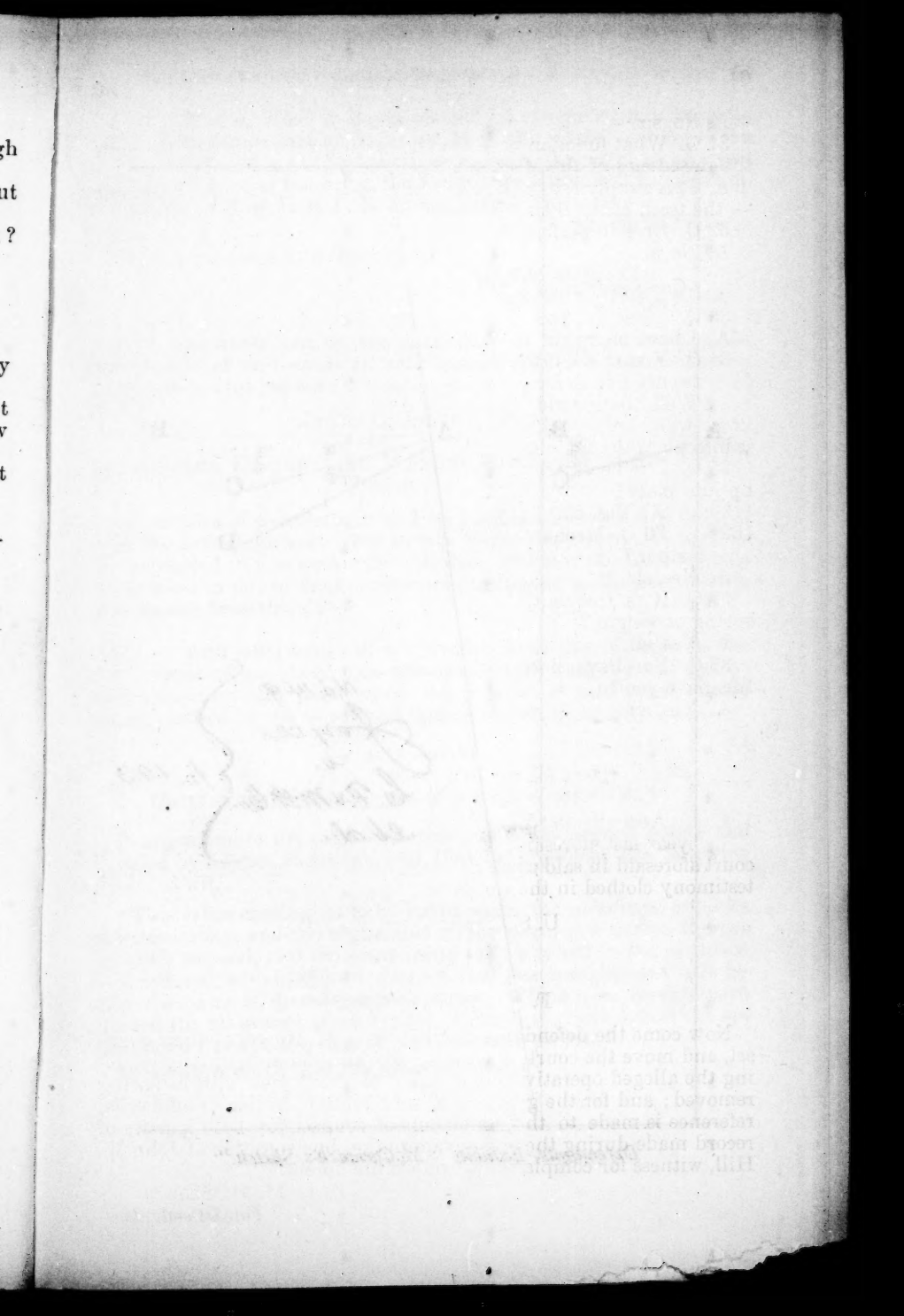
104 And afterwards, to wit, on the seventh day of June, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause a certain motion for leave to take further testimony clothed in the words and figures following, to wit:

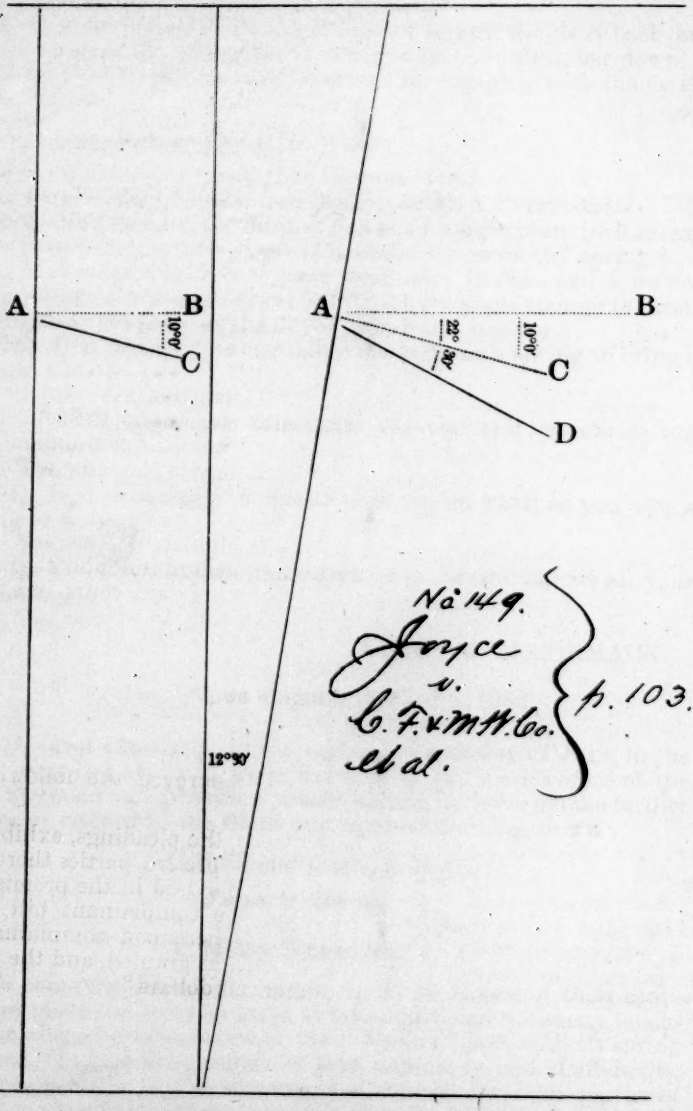
U. S. Circuit Court, S. D. O.

JACOB O. JOYCE
vs. } 33.
F. M. DE WEESE *et al.*

Now come the defendants herein, by L. M. Hosea, of their counsel, and move the court for leave to take additional testimony touching the alleged operativeness of the "Mosher" jack with its spring removed; and for the grounds of said motion, in lieu of affidavits, reference is made to the statements of counsel for both parties of record made during the cross-examination by deposition of John W. Hill, witness for complainant, and on file herein.

L. M. HOSEA,
For Defendants.





No 149.
Joyce
v.
C. F. & M. W. Co.
et al.
p. 103.

Defendants' Exhibit, "McCormack's Sketch."

Messrs. Wood & Boyd, counsel for complainant, will please
105 take notice that on Saturday, May 20th, at the opening of the court sitting at Cincinnati, or as soon thereafter as may suit the convenience of the court, the foregoing motion will be called up for hearing before Hon. P. B. Swing, judge.

L. M. HOSEA.

Copy served this 19th May, 1882.

WOOD & BOYD,
Counsel for Complainant.

And afterwards, but on the same day, an entry was made upon the journal of said court in said cause clothed in the words and figures following, to wit:

JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY AND MACHINE WORKS & F. M. DE WEESE. } No. 33.

On motion of complainant and for good cause shown it is ordered that the defendant have leave to take further testimony, the same to be concluded in one week from this date, and that the complainants have leave to put in further rebutting testimony to the same within one month from this date.

106 And afterwards, to wit, on the sixth day of June, in the year of our Lord one thousand eight hundred and eighty-three, an entry was made upon the journal of said court in said cause, clothed in the words and figures following, to wit:

JACOB O. JOYCE
vs.
CHILLICOTHE FOUNDRY AND MACHINE WORKS *et al.* } 33.

It appearing to the court that this cause was argued before and decided by Justice Matthews, and that he approved the following entry, to wit:

"This cause coming on to be heard upon the pleadings, exhibits, and testimony, and the arguments of the respective parties thereon by their counsel, and the court being fully advised in the premises, it is ordered, adjudged, and decreed that the complainant bill be, and the same is, dismissed with costs. Whereupon complainant prayed the allowance of an appeal, which was granted, and the appeal bond fixed in the sum of five thousand dollars."

It is now ordered that the same be entered.

107 Circuit Court of the United States, Southern District of Ohio, Eastern Division.

JACOB O. JOYCE
vs.
THE CHILLICOTHE FOUNDRY & MACHINE WORKS COMPANY and F. M. DE WEESE.

Know all men by these presents that we, Jacob O. Joyce and William P. Callahan, are held and firmly bound unto the Chillicothe Foundry & Machine Works Company and F. M. De Weese in the sum of one thousand dollars, to be paid to the said Chillicothe Foundry & Machine Works & F. M. De Weese, their executors or administrators; to which payment, well and truly to be made, we bind ourselves and each of us, jointly and severally, and our and each of our heirs, executors, and administrators, firmly by these presents.

Sealed with our seals. Dated this 28th day of June, 1883.

Whereas the above-named Jacob O. Joyce has taken an appeal to the Supreme Court of the United States to reverse the decree rendered in the above-entitled action by the circuit court of the United States for the southern district of Ohio:

Now, therefore, the condition of this obligation is such that if the above-named Jacob O. Joyce shall prosecute his said appeal to effect and answer all costs if he shall fail to make good his plea, then this obligation to be void; otherwise to remain in full force and virtue

JACOB O. JOYCE. [SEAL.]
W. P. CALLAHAN. [SEAL.]

Sealed and delivered in presence of—
J. G. GAEGEL.
JOHN L. H. FRANK.
CHARLES M. CALLAHAN.

The above security is approved.

GEORGE R. SAGE,
District Judge of the United States, S. D. Ohio.

108 And afterwards, to wit, on the twenty-eighth day of July, in the year of our Lord one thousand eight hundred and eighty-four, there was filed in the clerk's office of the court aforesaid, in said cause, a certain mandate from the Supreme Court of the United States clothed in the words and figures following, to wit:

UNITED STATES OF AMERICA, *ss*:

The President of the United States of America to the honorable the judges of the circuit court of the United States for the southern district of Ohio, Greeting:

Whereas lately, in the circuit court of the United States for the southern district of Ohio, before you, or some of you, in a cause between Jacob O. Joyce, complainant, and The Chillicothe Foundry and Machine Works Company and F. M. De Weese, respondents,

wherein the decree of the said circuit court, entered in said cause on the 6th day of June, A. D. 1883, was in favor of the said respondents and against the said complainant, whereupon the said complainant, Jacob O. Joyce, prayed an appeal to the Supreme Court of the United States, as by the inspection of the certificate of
109 the clerk of the said circuit court, under the seal of the said circuit court, which was brought into the Supreme Court of the United States agreeably to the act of Congress and the rules of the said Supreme Court in such case made and provided, fully and at large appears; and whereas, in the present term of October, in the year of our Lord one thousand eight hundred and eighty-three, the said cause came on to be heard before the said Supreme Court, and it appearing that the appellant has failed to have his cause filed and docketed in conformity with the rules of this court, it is now here ordered, adjudged, and decreed by this court that this appeal from the circuit court of the United States for the southern district of Ohio be, and the same is hereby, docketed and dismissed with costs, and that the said respondent recover against the said complainant, Jacob O. Joyce, thirty-two dollars and fifty-five cents for their costs herein expended and have execution therefor.

And it is further ordered that this cause be, and the same is hereby, remanded to the said circuit court.

24TH APRIL, 1884.

You, therefore, are hereby commanded that such execution and proceedings be had in said cause as, according to right and
110 justice and the laws of the United States, ought to be had, the said appeal notwithstanding.

Witness the Honorable Morrison R. Waite, Chief Justice of said Supreme Court, the eighth day of July, in the year of our Lord one thousand eight hundred and eighty-four.

[SEAL.] JAMES H. McKENNEY,
Clerk of the Supreme Court of the United States.

And afterwards, to wit, on the 16th day of August, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause a certain application for an appeal, clothed in the words and figures following, to wit:

JACOB O. JOYCE, Appellant,
vs.
THE CHILLICOTHE FOUNDRY & MACHINE WORKS CO. & F. M. DE WEESE, Respondents. } 33.

Jacob O. Joyce, the above-named complainant, hereby prays an appeal from the decree in the above-named cause, rendered July, 1883.

JACOB O. JOYCE,
By WOOD & BOYD,
Solicitors & Counsel.

111 Said application for an allowance of an appeal was endorsed as follows, to wit:

Appeal allowed. Bond for costs to be given in the sum of five hundred dollars. Stanley Matthews, associate justice. August 16th, 1884.

And afterwards, to wit, on the first day of September, in the year last aforesaid, there was filed in the clerk's office of the court aforesaid in said cause a certain appeal bond, clothed in the words and figures following, to wit:

112 Circuit Court of tne United States, Southern District of Ohio.

JACOB O. JOYCE
vs.
THE CHILLICOTHE FOUNDRY & MACHINE WORKS CO. and F. M. DE WEESE.

Know all men by these presents that we, Jacob O. Joyce and W. P. Callahan, are held and firmly bound unto The Chillicothe Foundry & Machine Works — and F. M. De Weese, def'ts, in the sum of five hundred dollars, to be paid to the said defendants, their executors or administrators; to which payment, well and truly to be made, we bind ourselves and each of us, jointly and severally, and our and each of our heirs, executors, and administrators, firmly by these presents.

Sealed with our seals. Dated this — day of August, 1884.

Whereas the above-named complainant have appealed said cause to the Supreme Court of the United States to reverse the decision rendered in the above-entitled action by the circuit court of the United States for the southern district of Ohio:

Now, therefore, the condition of this obligation is such that if the above-named complainant shall prosecute said appeal to effect and answer all costs if he shall fail to make good his plea, then this obligation to be void; otherwise to remain in full force and virtue.

JACOB O. JOYCE. [SEAL.]
W. P. CALLAHAN. [SEAL.]

Sealed and delivered in presence of—
G. W. SALLENBURGER.
WILLIAM K. CALLAHAN.

The above security is approved.

STANLEY MATTHEWS,
Associate Justice Sup. Court U. S.

113 UNITED STATES OF AMERICA, *Southern District of Ohio,* } ss:

I, William C. Howard, clerk of the circuit court of the United States within and for said district, do hereby certify that the foregoing is a true and correct transcript of the record and proceedings in a cause pending in Columbus, Ohio, in said district, wherein Jacob O. Joyce is complainant and The Chillicothe Foundry and Machine

Works Company and F. M. De Weese are respondents, as the same remains of record in my office.

In testimony whereof I have hereunto set my hand and affixed the seal of said court. Done at the city of Columbus this 15th day of September, A. D. 1884.

[Seal of the Circuit Court, South'n Dist. of Ohio.]

WILLIAM C. HOWARD,
Clerk U. S. Circuit Court, S. D. O.

114 THE UNITED STATES OF AMERICA, *ss:*

To the Chillicothe Foundry and Machine Works Company and F. M. De Weese, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States to be holden at the city of Washington on the second Monday of October next, pursuant to an appeal lately allowed by the circuit court of the United States for the southern district of Ohio, wherein Jacob O. Joyce is plaintiff and you are defendants, to show cause, if any there be, why the judgment mentioned should not be corrected and speedy justice be done to the parties in that behalf.

Witness the Honorable Morrison R. Waite, Chief Justice of the said Supreme Court, this first day of September, in the year of our Lord one thousand eight hundred and eighty four.

[Seal of the Circuit Court, South'n Dist. of Ohio.]

STANLEY MATTHEWS,
Associate Justice Sup. C't U. S.

115 I received this writ at Columbus, O., on the 1st day of September, 1884, and served it Sept. 4th by delivering personally to William J. Ingham, president of said defendant, The Chillicothe Foundry and Machine Works Company, and leaving at the residence of F. M. De Wies, in Chillicothe, Ohio, a duly certified copy of this writ with the endorsements thereon.

LOT WRIGHT,
U. S. Marshal, Southern District of Ohio,
By C. M. MORRIS, *Deputy.*

[Endorsed:] United States circuit court, S. D. O., eastern div. No. 33. J. O. Joyce *v.* Chillicothe Found-y & Mach'n. W'ks Co. *et al.* Citation to appellee. Filed Sept. 5th, 1884. W. C. Howard, clerk.

Endorsed on cover: S. Ohio, C. C. U. S. No. 149. Jacob O. Joyce, appellant, *vs.* The Chillicothe Foundry and Machine Works Company and F. M. De Weese. Filed 22nd October, 1884.

127-557

Supreme Court of the United States,

OCTOBER TERM, 1887,

No. 149.

Jacob O. Joyce, Appellant,

vs.

The Chillicothe Foundry and Machine Works Company and F. M. De Wiese.

COPIES OF PATENTS AND DRAWINGS

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